Occupational HAZARDS

THERE'S PROFIT IN PREVENTION

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IN THIS ISSUE:

SAFE SLING PRACTISE IN INDUSTRY
HOW STRONG ARE YOUR SCAFFOLDS?
SOME FACTS ABOUT CARE OF FIRE HOSES

HD7260
.03

Fumes out...

production up!

AT TROY SUNSHADE CO., TROY, OHIO

An old, inadequate fume removal system has been put in the shade by a new, efficient KIRK & BLUM Engineered System installed in the pickling and plating rooms of the Troy Sunshade Co. Individual hoods sweep a curtain of air across each fume-producing tank, picking up irritating fumes before they can affect the efficiency and health of plating employees.

No matter how large or small your plating operations, Kirk & Blum Engineers can design a system that will keep fumes OUT . . . production UP, in your plant. Write for descriptive booklet "Fan Systems for Various Industries." A Kirk & Blum Engineer will be glad to show you the money saving advantages of an up-to-date fume or dust removal system. The Kirk & Blum Mfg. Company, 2802 Spring Grove Ave., Cincinnati 25, Ohio.

One section of pickling and plating department at Troy Sunshade Co. Note fume-collecting hoods on tank at right and three tanks in left background.

Fume exhaust and blower enclosure for above Note clean, compact lines.

FOR CLEAN AIR... THE INVISIBLE TOOL

KIRK AND BLUM

FUME CONTROL SYSTEMS

knockout! THE CROWDS GO FOR IT

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Watch foot safety records climb the minute your workers start wearing safety shoes *willingly*.

You can insure their willingness without urging or arguing. Just make it easy for your men to buy safety shoes in a brand they already know and trust — Thom McAn.

In plant after plant we've proven that workers do wear Thom McAn Safety Shoes willingly. That means they get the all 'round protection that piles up foot safety records.

Here Are 2 Easy Ways To Make Thom McAn Safety Shoes Available to Your Men:

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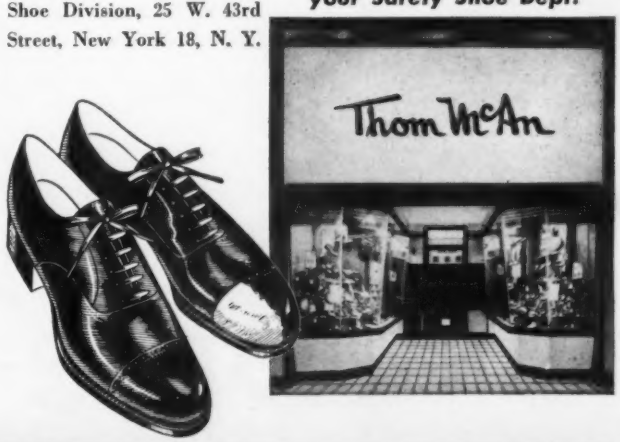
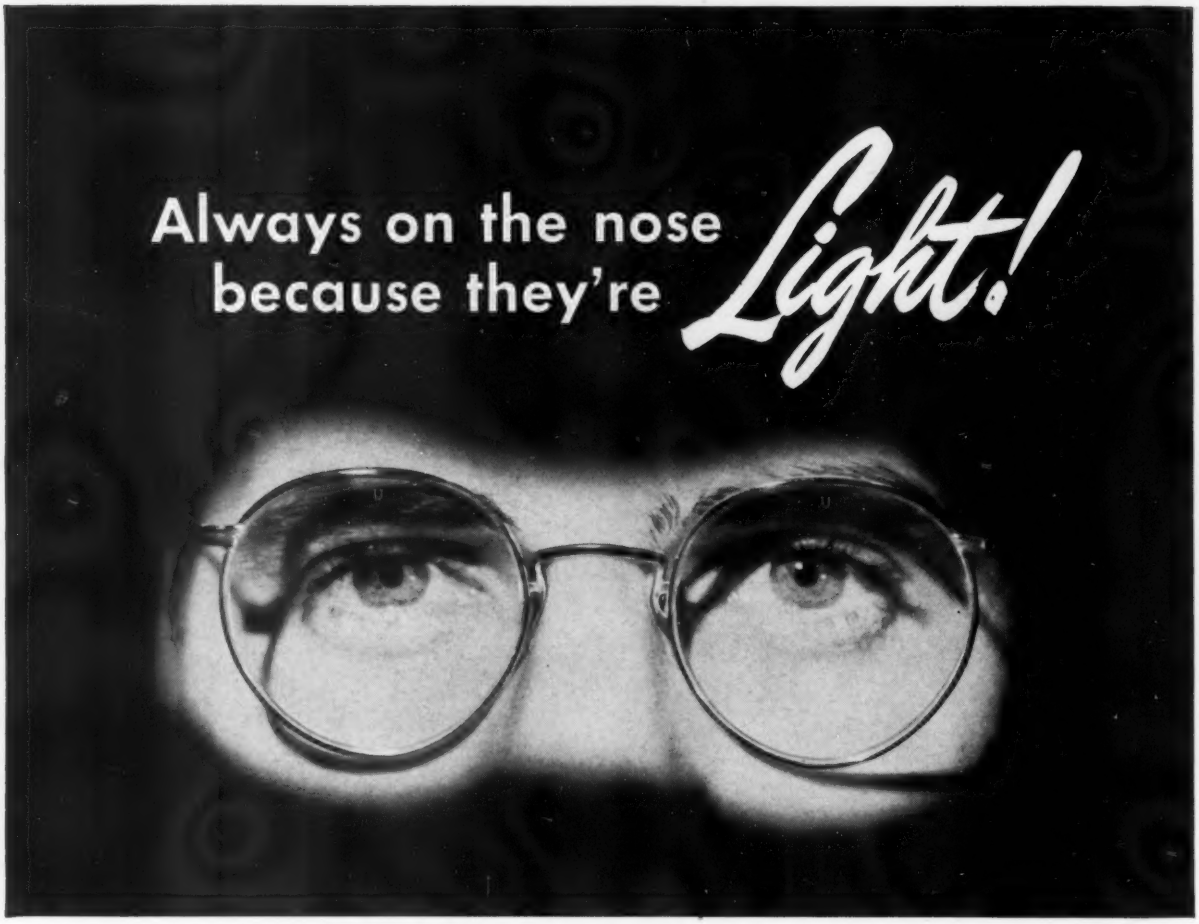
For complete details write today to: Thom McAn Safety Shoe Division, 25 W. 43rd Street, New York 18, N. Y.

Make this store your Safety Shoe Dept.



THOM McAN — THE SHOE EVERYBODY KNOWS — AND ALMOST EVERYBODY WEARS



New, lightweight Safe-T-vis is a goggle that workers will wear!

A common complaint among industrial workers is that safety glasses are heavy and uncomfortable to wear. This condition results in their removing them and chancing exposure to industrial hazards. Protective spectacles are worthless unless they are before the worker's eyes.

Safe-T-vis is tangible evidence that goggles do not have to be heavy to be functional. Rather, it is their unusual *lightness* that enables workers to wear them for maximum protection on the job *all the time.*

In addition to lightness and safety, Safe-T-vis offers *a very high* scratch resistance, a feature of importance to Safety Men.

It is also highly resistant to high velocity impact, welding-spatter and spark-pitting. Further, these lenses are optically correct.

Safe-T-Vis is available in a lightweight modern frame — with or without side shields — in 47 mm. P-3 and 44 mm. P-3 eye sizes; and in a specially designed rimless mounting for use against exposure to minor or intermittent hazard.

Safe-T-vis

Lightweight protective spectacles

A product of THE UNIVIS LENS COMPANY, Dayton 1, Ohio

Handcuff dust at its source

DUST on the loose breeds trouble. Workmen, machinery, plant and product—all are handicapped where process dust is not controlled.

The Roto-Clone system of dust control picks up dust-laden air at its source, separates the dust, delivers the collected material to storage hopper or disposal point and expels the clean air all in a single operation—with one moving part. It's compact, requiring minimum space—costs less to install because location at or near source of dust eliminates long pipe lines and expensive outdoor dust collectors.

Roto-Clones are available in a size and type to handle dust separation efficiently over a wide range of particle sizes and specific gravities. There's an experienced American Air Filter representative in your area. He has seen many dust problems that were "different"—and solved them with Roto-Clones. Write today for complete information.

AAF

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American Air Filter Company, Inc. 366 CENTRAL AVENUE **Louisville 8, Kentucky**

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VISUAL EFFICIENCY

FIRST STEP TO SAFETY

The Bausch & Lomb Industrial Vision Service offers a proved fact-finding method for accident reduction through scientific visual classification

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The Bausch & Lomb Industrial Vision Service is the result of more than eight years of scientific research in industry, under the auspices of the Industrial Vision Institute of Purdue University. It is an easily-administered system which can be installed in your plant. By scientific methods, the visual skills of employees are measured. From factual data secured, visual standards are determined for each job. Against these standards are compared the visual skills of present and prospective employees. Those failing to meet the standards are recommended for professional eye care.

The results, proved in dozens of plants in many industries, are lowered accident records, increased production per worker, improved quality, lower training costs and less labor turnover. Wouldn't you like to be able to recommend a program with these advantages for your plant?

BAUSCH & LOMB

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Industrial Vision Department
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Please send me a copy of "Vision in Industry" and details of the Bausch & Lomb Industrial Vision Service.

NAME.....

TITLE.....

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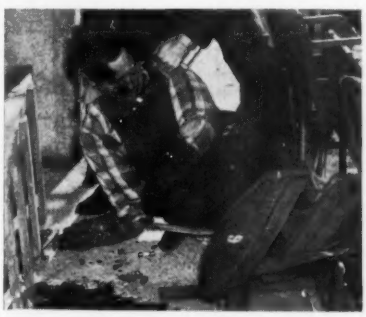
CITY..... STATE.....

Do you have any questions, theories or ideas concerning industrial health or safety? If you want to give them a good airing—send 'em along. We'll publish all space permits.

Sudden Injury

OCCUPATIONAL HAZARDS:

Your accident picture of the month in the November issue of "Occupational Hazards" will show to the safety engineers and first aid attendants in industry the value of wearing safety belts on all jobs requiring this protection. After looking at this picture, and being an industrial trained first aid attendant, it did not appear to me that this injured man fell in this position, supported by another person. To support this badly injured man in this position so that a picture could be taken does not show very good training in first aid on the part of the firm that employed this workman, or upon the person who took the picture. If I have the wrong slant on this picture I would appreciate your letting me know. If I'm right, I feel that this letter of mine should be printed in Occupational Hazards magazine so that all injured workmen may be handled properly.—Dennis Tilley, First Aid Attendant, Mueller Limited, Sanira, Ontario, Canada.



We assure reader Tilley that the injured man was not propped up for the sole purpose of having his picture taken. The photographer arrived on the scene just as the victim was being moved onto a stretcher which does not appear in the picture. We appreciate your letter, however, and agree with you 100% that injured persons should be handled with care. —Ed.

NBS CO Indicating Tubes

OCCUPATIONAL HAZARDS:

You will recall writing Mr. Tilley of our Editorial Service on June 25, 1947, requesting the names of the American firms licensed to produce the NBS Colorimetric Carbon Monoxide Indicating Tubes, so that this information might be published with my article and thus answer any inquiries that otherwise would have been directed to your office. Mr. Tilley replied, giving you the names of two licensed companies who planned to produce the tubes. These were: Mine Safety Appliance Co., Pittsburgh, Pa., and the United States Safety Service Co., Kansas City, Mo.

When the article appeared in the

(Continued to Page 35)

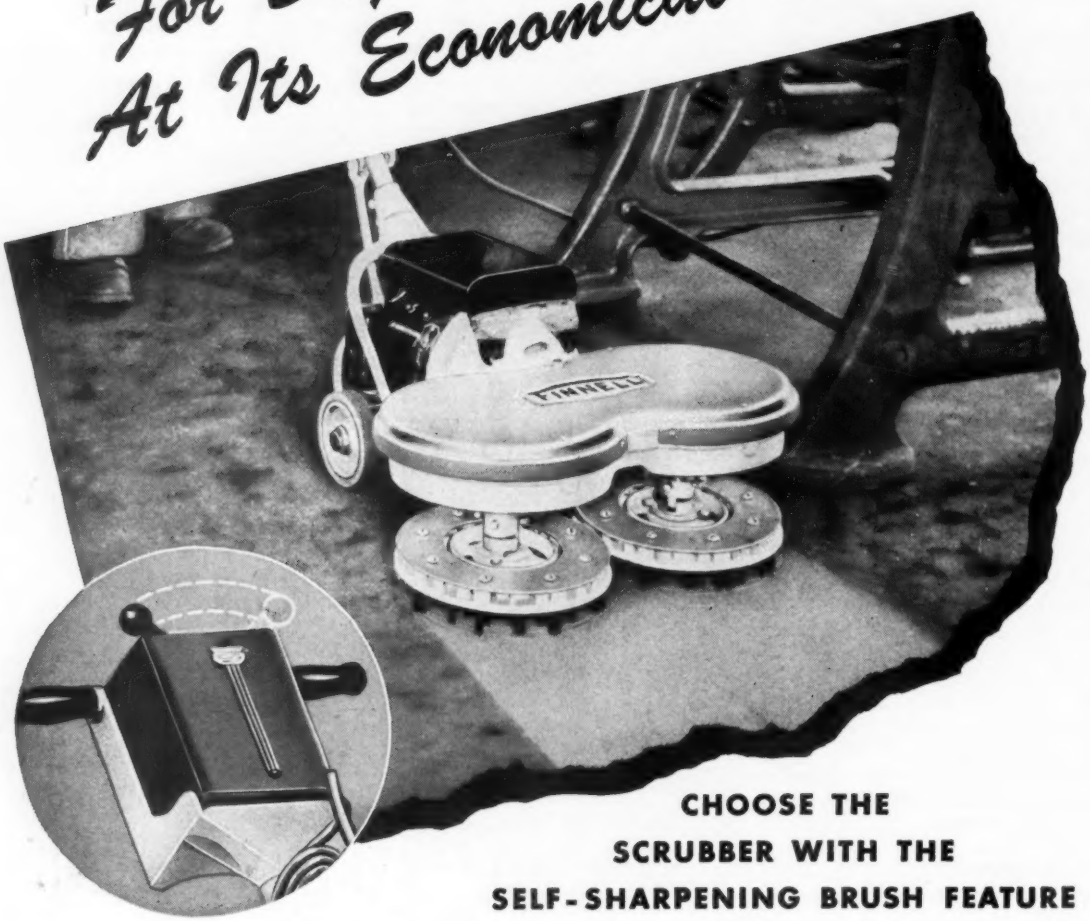
Dust and fumes don't get a chance to circulate in plants equipped with a Schmieg CENTRI-MERGE Eliminator. The moment dust or fumes develop from buffing, burring, grinding, polishing, curing or any other processing operation, they are swept up on an air stream that carries them back through ducts to a central Collection Unit. In the washing chamber of this Unit the CENTRI-MERGE high pressure centrifugal water action literally *scrubs* every last vestige of contamination from the air stream—cleans it so thoroughly that, in many cases, it can be recirculated back into the plant. That's why users are so enthusiastic about what CENTRI-MERGE accomplishes. Protects both workmen and work.

Consult Schmieg engineers regarding your problems of dust and fume control.

THE best AIR PURGE is CENTRI MERGE

Schmieg INDUSTRIES INC.
Engineers & Manufacturers
303 PIQUETTE AVENUE • DETROIT 2, MICHIGAN

For Dry Scrubbing At Its Economical Best



CHOOSE THE SCRUBBER WITH THE SELF-SHARPENING BRUSH FEATURE

There's never a *dull* moment on brush performance with the *Finnell* Dry Scrubber. A flip of the switch reverses the motion of the brushes and re-sharpens them automatically! . . . eliminating the need for frequent changing of brushes by hand in order to maintain a good cutting edge. Automatic reversal of the brushes also helps keep them functioning efficiently by ejecting sticky substances that may otherwise tend to clog and slow up the cleaning process.

With this heavy duty *Finnell*, grease-caked floors can be cleaned in *one-tenth* the time required when hand-spudding, and far more thoroughly. Floating brush rings enable the two powerful scarifying brushes to get into indentations and grooves that rigid coupling brushes pass over and miss. And the low construction makes it easy to clean around and beneath equipment. The machine is adaptable to wet scrubbing, steel-wooling, waxing, and polishing. Ruggedly constructed, assuring long, trouble-free service. Has heavy duty G. E. Motor, oversize Timken Roller Bearings, special bronze worm gears—a quality product throughout, developed and produced by *Finnell*, originators of mechanical floor-maintenance equipment.

Clean floors aid safety underfoot . . . bolster worker morale . . . reduce fire hazards . . . speed trucking, and otherwise aid production. It *pays* to keep floors clean —especially with a labor-saving *Finnell* Dry Scrubber.

For free floor survey, consultation, or literature, phone or write nearest *Finnell* branch or Finnell System, Inc., 3501 East St., Elkhart, Ind. Canadian Office: Ottawa, Ont.

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Pioneers and Specialists in

FLOOR-MAINTENANCE EQUIPMENT AND SUPPLIES

BRANCHES IN ALL PRINCIPAL CITIES

Occupational HAZARDS

VOLUME 10 • No. 3

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COVER: Sandblasters—men dressed in "Diver" helmets, their lungs protected by charcoal filters, blast the rust off the old freight cars. (Photo: Springfield Newspaper Incorporated)

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Profits Coming Out in the "WASH"?

LAN-O-KLEEN'S *DOUBLE ACTION CLEANSING* HELPS AVOID PRODUCTION LOSSES!

Idle hands breed no prosperity. Many a dollar of profit flows down industry's drain yearly due to harshly abrasive alkaline soaps which irritate the skin, promoting excessive "dryness." Millions of productive man-hours are thus lost—the result of diminished skills and enforced absenteeism.

Lan-O-Kleen helps keep workers efficient and punching the timeclock regularly. *It avoids aggravation of sensitive skins by the gentle, sponge-like action of its vegetable-meal granules.*

Workers *feel safe* with this powdered soap because it contains no harsh ingredients—prefer it for the soft, fit-for-work feeling it gives to their hands.

Increase the hand-safety factor in your plant by using Lan-O-Kleen at workers' washstands. West maintains almost 500 trained representatives to help you with your safety problems. Contact us now!

SAVE SOAP AND YOU SAVE EXTRA MONEY!

A modern, economical Lan-O-Kleen Dispenser regulates the amount of soap used—*prevents costly waste.* Readily adaptable for Bradley Fountains.

Send for this handsomely illustrated folder. It contains details of the dispenser, the healthful cleansing action of Lan-O-Kleen and complete washing instructions.

PRODUCTS THAT PROMOTE SANITATION

WEST DISINFECTING Company

42-16 West Street, Long Island City 1, N. Y.

Now HY-TEST offers

A SAFETY SHOE with DRESS SHOE SMARTNESS

N THE JOB

With HY-TEST'S EXCLUSIVE ANCHOR FLANGE STEEL BOX TOE

OR OFF

H-712—antique finished brown Kip blucher oxford with medallion tip. Oak leather sole, half rubber heel. Anchor Flange steel box toe.

Chances are that a considerable percentage of the men in your plant shy away from safety shoes because of their work shoe appearance. HY-TEST'S smart, dressy brown oxford, shown here, enables you to offer them safety shoe protection in a shoe they'll be proud to wear anywhere.

Write for HY-TEST'S New Catalog
Over 50 Styles—Sizes 5-14, Widths AA-EEE

...Insure Workers Feet In Sure Protection

with HY-TEST *Safety Shoes*

THE WORLD'S LARGEST SELLING SAFETY SHOE

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-TEST DIVISION • INTERNATIONAL SHOE COMPANY • ST. LOUIS 3, MO.
EASTERN OFFICE • MANCHESTER, N. H.

Executive

You've never seen a safety shoe that looks like this!

Safety shoe in the plant!
Street shoe after hours!

TWO SHOES IN ONE!

This is your answer to the problem of getting your men to invest in an "extra" pair of shoes for safety on the job. Order a pair for inspection *today*—return them for full credit if they do not meet your requirements. Or send for a Lehigh representative.

Yes . . . with the same Lockrim* steel toe box found in every pair of Lehigh safety shoes. High carbon, cold rolled, Austempered steel. Patented Lockrim* can't cut into sole under heavy impact. Locks toe box in place for life of shoe.

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Send for NEW LEHIGH CATALOG #14B today . . .
First *completely new* safety shoe catalog in years.

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Division of the ENDICOTT JOHNSON CORPORATION
WESTERN OFFICE: 12th AND SPRUCE ST. LOUIS 2, MO.

*REG. U.S. PAT. OFF.

Safe Scaffold Construction

By THOS. SOULE, Chief Engineer,
Industrial Indemnity,
San Francisco

Mr. Soule

FALLS from a height rank second only to motor vehicles as the most frequent cause of fatal accidents in the United States. Most of these falls are unnecessary.

Faulty scaffold construction is responsible for a large proportion of the falling accidents. Our investigation of scores of scaffold accidents has convinced us that workmen provided with a scaffold built according to standard safety specifications are seldom involved in falling accidents.

I. Design

Scaffolds should be designed for the load that is to be imposed upon them. For example, a much lighter scaffold can be used for a carpenter than for a bricklayer or steel worker.

Care must be taken, however, to see that a staging erected primarily for light trades is not also used later on by a heavy trades crew. If this is to be the case, the heavy trades scaffold should have been erected in the first place.

II. Light-Trades' Pole Scaffolds
Standard Specifications

1. Uprights. For heights not exceeding thirty-two (32) feet use two by four (2 x 4) inch lumber or heavier. For heights above thirty-two (32) feet use four by four (4 x 4) inch lumber, or larger.
2. Ledgers. Use two, one by six (1 x 6) inch boards nailed to either side of upright or one, one by eight (1 x 8) inch board.
3. Ribbons. Use one by six (1 x 6) inch boards or heavier.
4. Hand Rail. Use one by six (1 x 6) inch board, one by eight (1 x 8) inch board, or two by four (2 x 4) inch board. Place forty-two (42) inches above platform.
5. Platform. Use two, two by ten (2 x 10) inch planks or heavier. Overlap at least one foot.

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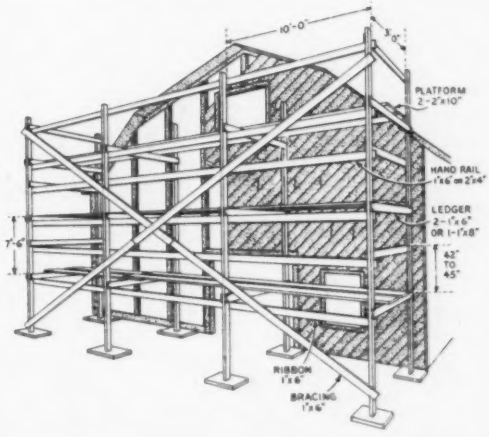
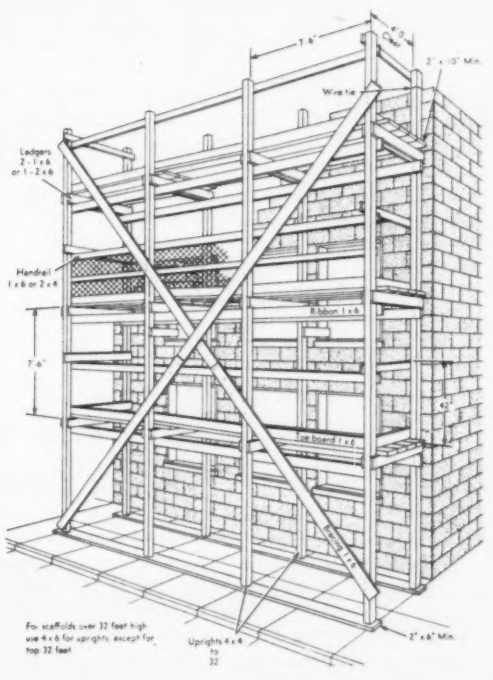


Standard specifications for light-trades' pole scaffolds.



Standard specifications for heavy-trades' pole scaffolds.

LET'S TALK ABOUT-
SAFE USE OF SL

Wire rope slings are designed to handle loads safely and economically. They have a multitude of uses, ranging from light to extremely heavy jobs.

Used to hoist loads from one location to another, slings have such a wide industrial application that they are used in practically every branch of industry at some point during the manufacturing operation. Slings are essentially devices used to break the law of gravity. The act of breaking that law automatically endangers life, limb and property in the event of sling failure. In addition to discussing the various types of slings used in industry, this article deals with some important rules concerning safe sling practices which can reduce or eliminate failure of slings and so reduce or eliminate the hazards involved by such failures.

COMMONLY used throughout industry, the sling is that flexible device used to support, hoist and convey loads to new resting places. It should be fully realized that a sling is one of the most important pieces of equipment in any plant. It is not only an essential part of the lifting conveyance, but its use must also safeguard life and property as well. Every reasonable care should be taken not to damage, overload or distort the sling or its attachments. Periodic, thorough inspections of slings is strongly recommended. For the benefit of those plants not having adequate facilities for this inspection, it should be known that all reputable manufacturers of the various type slings maintain departments for this purpose.

Care should be taken to avoid any unnatural strain on a sling, regardless of its type, as the damage caused by this careless operation will greatly shorten the life of the sling and may cause dangerous and costly failure.

Sling Types

There are three common types of slings, though there are many variations in individual construction that further subdivide them. However, the three main classes are Manila Rope, Chain and Wire Rope. Each of these have certain peculiar advantages, and for certain kinds of work these advantages often dictate the type sling which is to be used.

Safe Sling Practice

Safe sling practice can be considered to start with the choosing of the best available slings fabricated by well-known, reputable manufacturers. Good grade industrial slings are made to handle loads safely and economically. However, maximum safety and long service can be obtained only if certain precautions are followed. These specific safety recommendations will be discussed in this article under the various headings of the type sling concerned.

There are some general safety rules applicable to all types of slings. The diagram below, left, for instance, illustrates how the angle of a sling, regardless of its type, alters its safe carrying capacity. It is apparent that neither the age of a worker nor the length of his industrial experience indicates his realization of how the lifting capacity of a sling is affected by the angle of leg separation. (You, yourself, may have stopped a graybeard from hooking a load with the legs of a double sling in almost a straight line!) When lifting a load, special consideration should be given to the angle that sling legs make to the horizontal; lifting capacity *decreases* much more rapidly than might be expected when the leg angle is reduced.

Head-room is an important factor in lifting loads safely. The head-room is the distance between the

SLINGS IN INDUSTRY

lifting hook and the load being lifted. By *increasing* the head room the angle of inclination is also increased, thus allowing greater safe loads.

There are other ways in which slings can be mishandled. To insure good, safe practice, it is advisable to conspicuously post a table of safe working loads, plus a list of printed precautions that apply to all slings. Such a list should include the following:

NEVER:

1. Overload a sling
2. Apply a load suddenly
3. Insert a hook in a chain link
4. Use a sling that looks unsafe
5. Carry a load on hook point
6. Hammer a sling into place
7. Fasten a sling over sharp corners
8. Cross, kink or twist a sling
9. Permit load to rest on sling
10. Drag a sling from under a load
11. Trust a sling that has been stretched
12. Carry an unbalance load.

Such precautions, of course, are not of much value unless quality slings have been chosen for the job at hand and unless a fair margin of safety for the required job has been provided. Material, durability, type and size of the sling is of primary importance when considering safe sling practice. The job should first be analyzed and competent help called into the plant to determine the conditions of the job, the special hazards involved, etc. The expert has to consider many things, some of which might escape the attention of the unexperienced. In order to determine, for instance, the safe working load, the expert considers the manner in which the load is handled in the plant. Broadly, there are three types of sling loads:

Class "A" Load—This is the most desirable condition, and under this type of loading the sling is attached to the load by means of suitable connecting fittings such as lugs, temporary eye bolts and other special attachments. A sling which encircles a smooth cylindrical body is also considered to be a Class "A" load. Other than this one exception, the sling does not come in direct contact with the load.

Class "B" Load—The sling is put around the load to be lifted. In Class "B" loads, it is possible to protect the sling at sharp corners by saddles or other protective devices.

Class "C" Load—This type load represents the more severe lifting conditions in which the sling is used as a choker, and in other cases where it is not practical to protect the sling from sharp corners or abrupt bends.

After the peculiar problems of the job have been determined, specialists in this type of work can advise management as to the type sling best suited to safely and economically move their loads.

Manila Rope

For light loads, an endless manila fibre rope, looped into a noose about the object to be lifted, is satisfactory, inexpensive, light and easy to handle. Rope can be bent around comparatively sharp corners and edges of boxes and crates, but should be padded where it passes over sharp edges of metal parts. Even on certain heavier jobs, such as handling shafts that must not be scratched, manila rope slings find much favor. On permanent installations, however, and on heavy lifting operations, rope has limitations. A common one is deterioration through weather whereby it is difficult to determine the actual strength of the rope. The general precautions to be considered for the safe use of manila rope slings are: age and condition

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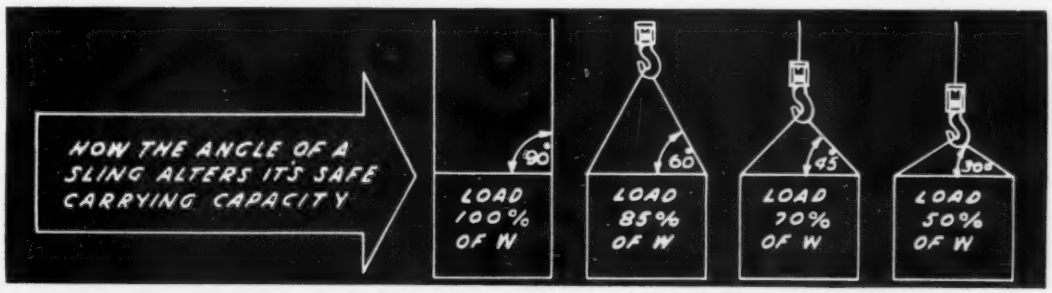
Chain slings used to load an industrial car with a bundle of hot rolled steel.



PRACTICAL PRECAUTIONS WITH PLASTICS

The author states it is the responsibility of plant Medical and Safety Departments to know what materials are used in plastic manufacture, what hazards are involved and to institute the proper control measures.

by
C. SCOTT McKINLEY, M.D.,
Medical Director
Bakelite Corporation,
Bound Brook, New Jersey

THE TERM plastics, as used today, is applied to those products of the chemical industry known as synthetic resins and to the products made from these resins. Synthetic resins range from rigid molded materials, such as telephone receivers, to flexible sheetings, such as raincoats and shower curtains, from adhesives to cloth coatings.

The finished product made of plastic, will commonly have gone through several manufacturing processes; raw materials may have been synthesized in one plant, another plant will produce the basic resin, final utilization will be performed in many types of manufacturing processes associated with the present extensive use of plastics. Some synthetic resins are used by manufacturers to make paints, varnishes and lacquers; other resins are used in the formulation of industrial saturants and adhesives. In still other forms, these plastics are converted by plastic molders, laminators and fabricators into countless industrial and consumer products used in communication and transportation equipment, in building construction, in wearing apparel and in electrical apparatus.

Hazards

THE basic materials used in the production of resins may frequently be toxic. One of the first commercially important synthetic resins was made by combining phenol and formaldehyde, both having certain toxic properties and both well known to chemists and physicians for many years. However, when such a resin is completely reacted, the toxic properties of the individual materials are no longer present.

Presented at the Thirty-Second Annual Meeting of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, Buffalo, New York, April 30, 1947.

Following the use of phenol and formaldehyde, plastics were made with urea and formaldehyde and then such materials as vinyl chloride, vinyl acetate, styrene, ethylene, methyl methacrylate, and many other materials. Some of these compounds have definite toxic properties also, while others have toxic properties that are negligible. However, these synthetic plastics are produced largely in enclosed systems which, under normal operating conditions, protect workers from harmful exposure. Experience has shown that rarely is systemic intoxication a problem among the workers making the basic resin.

Complete reaction of the basic materials forming a resin, in nearly all cases, gives rise to an inert product. However, the basic manufacture of certain resins frequently does not involve complete reaction. The incomplete reaction will allow certain toxic properties to persist to a minor degree and those

(Continued to Page 38)

INDUSTRIAL
Accidents in the News . . .

These accidents are taken from the pages of the Nations Newspapers. They've all happened—they didn't have to!

Carlyle, Ill., Union Banner:

Roy Garlich, plant superintendent at Kemco, lost the greater portion of four fingers on his left hand when it was caught in a punch press at the factory Sunday morning. Production had been going slow due to the lack of material, and Roy was attempting to help catch up and get ready to start Monday when the accident happened. He was taken to St. Joseph's hospital in Breese for treatment.

Prevention:

This is a clipping that should be carefully read by those fellows who are convinced that *safety* is divorced from *production*, and that the former is subordinate in order of importance. The two should go hand in hand, for without safety it is impossible to get good production as is so clearly pointed out in this news clipping. Four fingers is a steep price to pay for "catching up" with production, especially when it was all to no avail. More time was lost in this case (and in all accidents) and chances are that production really tumbled with the plant super out of circulation.

◆

Hoboken, N. J., Jersy Observer

Dorothy Uzdowski, 18, of Jersy City, at work in the plant of the Jersy City Printing Company, 60 Maple Street, last night suffered an injury to her right forefinger as she was cleaning a press. The tip of the finger was amputated by Dr. Morgan, and the girl was detained at the Medical Center.

Prevention:

No attempt should be made to clean any type of machinery unless that machinery is first shut down and signs have been posted clearly stating that the machine is being cleaned and should not be started. As a double check, the hands or fingers should not be placed in any position where they might receive an injury should the machine be started. A long handled brush, or some other device should be used to clean out danger spots.

◆

Sacramento, Cal., Bee:

Kenneth Allen, 32, of Palermo, suffered the loss of his left hand as the result of an accident at the High Sierra Pine Mills here. The accident occurred as Allen was attempting to sweep some sawdust from the table of a power driven circular saw with his hand. He was taken to the Oroville Curran Hospital.

Prevention:

All saws can be adequately safeguarded for each and every type of operation for which the machine is suited. Satisfactory guards are available for ordinary ripping and crosscutting, but for dadoing, grooving and rabbetting, special guards are necessary. In addition to adequate guards, operators should be informed of safe practice procedures. One of them being, of course, never to sweep away chips with the hand. A long handled brush should be provided for this purpose. An air hose should never be used.

◆

Detroit, Mich., Free Press:

Kenneth Baker, 57, and Robert Duncan, 25, were electrocuted on the construction of the Knights of Columbus building in Amhertsberg, Ont., when a crane came in contact with a power line. The men were standing on wet ground guiding a steel beam that was being lifted by the crane when the accident occurred.

Prevention:

Several reports of similar accidents have recently been reported to Occupational Hazards. These tragedies and near-tragedies can be prevented. Before a mobile crane is moved into a new location the entire job area should be surveyed for all power lines. The length of the crane's boom should be considered. It is usually impossible or impractical to turn off the power in these lines. Therefore, the crane operator should be informed of the location of such power lines and warned to keep clear of them at all times.

◆

Anderson, Ind., Herald

Arthur Cook, age 36, sustained severe burns to his left foot when hot metal was upset on it at a local foundry. He was removed to St. Johns Hospital by ambulance.

Prevention:

Workers exposed to molten metals; whose duties necessitate the pouring of hot sand and molten metals should be required to wear some sort of adequate foot and leg protection. Available are various types of spring grip type, leather, asbestos, or fibre leggings. Metal foot guards should be part of the equipment worn. Air space between the metal foot guard and the shoe keeps the foot from becoming uncomfortably hot.

◆

Pittsburgh, Pa., Sun-Telegraph:

Robert W. Schmertz, Jr., 20-year old son of a Pittsburgh architect, was killed when he came in contact with 6,000 volts of electricity at Jones & Laughlin's South Side plant. Schmertz fell to the floor after brushing against the line. He had been painting a coal conveyor high above the floor, officials said.

Prevention:

Live wires should be marked with danger signs and dangerous areas should be roped off. In places where work is done infrequently, workers should be warned if there is danger of coming into contact with live wires. If at all possible, the current should be shut off while men are working in the immediate vicinity of such wires.

WOMEN IN INDUSTRIAL ACCIDENTS

Do you employ women in your plant? The Women's Bureau of the United States Department of Labor have completed a statistical analysis of injuries sustained by women in 9,154 manufacturing establishments. The meat and metal industries have the highest women's injury rates. Better safety programs and practices wherever the injury rate is high, will, the Bureau emphasized, benefit men as well as women.

COMPLETING a statistical analysis of injuries sustained by women in 9,154 manufacturing establishments, the Women's Bureau states that safety programs should be directed toward general improvement in all industries, with special emphasis placed wherever the injury rate is high. Such programs will not only be of benefit to women, the Bureau points out, but will also help in reducing the accident frequency rate of men.

Data Covers Nearly 3,000,000 Workers

Data for the analysis (obtained from employers by the Industrial Hazards Division of the Bureau of Labor Statistics) covered 2,843,588 workers, of whom 29 per cent were women. Since these figures represent a larger coverage of injuries by sex of the worker than heretofore has been available, the Bureau's analysis yields a broader understanding of industrial injuries as it relates to women workers.

Employment of the women in the 18 major industry groups represented in the report was concentrated largely in production tasks. The proportion ranged from over 90 per cent in the manufacturing of clothing, boots and shoes, textiles and cotton yarns, and pottery to about 40 per cent in the manufacture of paints and varnishes, motor vehicles, and tanks.

Women's Rate Lower Than Men's

The 836,753 women reported received 4,072 injuries out of a total of 27,063. These figures reveal that women, while forming 29 per cent of the total number of workers, received but 15 per cent of the injuries. During the 3-months period covered by the reports, about one woman in every 205 was injured. Comparable figures for men were one in every 85. The higher rate for the latter, the Bureau believes, is to be attributed largely to the fact that women are generally employed in less heavy or hazardous jobs than men.

Of the 10 manufacturing industries with the highest injury frequency rate for women, six also were among the 10 highest for men. These were slaughtering and meat packing, wood furniture, wooden containers, forgings and foundries, leather and leather products other than boots and shoes, and lumber.

The 11,000 women working in slaughtering and meat packing received 165 injuries, or one for every 67 women. In stamped and pressed

(Continued to Page 29)

EYE HAZARD SIGNS

NOTICE
ALL PERSONS WORKING IN THIS DEPARTMENT — MUST — WEAR GOGGLES
SAVE YOUR EYES WEAR GOGGLES
SAFETY FIRST
WEAR GOGGLES OR USE SHIELD
DANGER
WEAR GOGGLES WHEN CHIPPING OR GRINDING
CAUTION
WEAR GOGGLES WHEN USING THIS MACHINE

You'd think men would be most careful to safeguard a priceless possession . . . their sight.

Yet they take chances with their eyes . . . neglect to wear goggles on hazardous jobs or risk loss of sight in other ways.

STONEHOUSE SIGNS

FOR ACCIDENT PREVENTION

Drive Home the Warning . . .

"SAVE YOUR EYES"

In Stonehouse Catalog No. 8 there are many Eye Hazard signs. It's Free on request.

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MANUFACTURERS

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ACCIDENT PREVENTION SIGNS IN STANDARD COLORS AND DESIGNS

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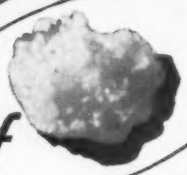

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This exclusive process, a triumph of Lightfoot laboratory research, has been hailed by industry everywhere as a tremendous advance in cleansing safety, efficiency and economy.

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H 7

MEN AND MATTERS

News • Activities • Plans

NEW PLANT HOSPITAL . . . To handle emergency cases and to carry out a broad program of preventive medicine, Mine Safety Appliance Company has just completed a new modern hospital and medical department which occupies 11 rooms. Located on the third floor of the Company's Pittsburgh plant, the hospital contains a lead-lined X-ray room with an observation chamber, a laboratory, physiotherapy rooms, a two-bed infirmary for women workers, and general treatment rooms and offices where complete case histories as well as records and charts of occupational and non-occupational ailments can be

filed. Pictured here is Dr. B. A. McAleer, medical director of the company, at his desk in the completely air-conditioned plant hospital.

SAFETY CENTER . . . A permanent exhibit of safety equipment in the heart of downtown Chicago is being set up by the Safety Clothing and Equipment Co., The Surety Mfg. Co., Inc., the Industrial Safety Educational Service and other producers of safety equipment.

It is sometimes difficult to vision how to safeguard a machine and still maintain or increase the output. With this in mind, the major service to industry of the Safety Center will be in the pictorial presentation. At Safety Center the "Doubting Thomas" is shown exactly how it is done.

Plant managers will be able to avail themselves of the offer of the Industrial Safety Educational Service to give a group of their workers a period of instruction that should materially increase output of workers.

The general management of the Safety Center will rest on Mr. George Ray, local manager of the Safety Clothing & Equipment Co., of Cleveland.

REVISION OF SAFETY ORDERS . . . As part of its program to make California one of the safest states in the Union in which to work, the State has set up divisions of industrial safety and revised and modernized its safety orders, Paul Scharrenberg, director of the California State Department of Industrial Relations, recently announced.

He declares that American Standard Safety Codes are being followed as far as practical in modernizing the existing orders and in drafting new ones. This is being done, he explained, because these national safety standards are excellent in themselves and help to bring about uniformity with other states.

"Lack of uniformity between states," he says, "has been one of the most serious stumbling blocks in effective enforcement of safety regulations. Standardization thruout the country, we are certain, would be very helpful to manufacturers of industrial equipment, as well as to concerns who find it necessary to move equipment from one state to another."

NEW BUSINESS . . . Mr. S. W. Koffler, formerly Sales and Sales Promotion Manager for the Loewenthal Company, announces the establishment of his own manufacturing and sales organization to be known as the Koffler Sales Corporation. The Loewenthal Company recently dissolved and retired from the field. Mr. Koffler will continue in the manufacture of rubber link matting for industrial use.

10 OUT OF 10

PLANTS GAIN MORE BY USING

CESCO

Safety Equipment

New Air-Flow Helmet
CESCO's new Air-Flow welding helmet provides complete safety, greater comfort and protection against fumes. Write for Bulletin B.

• CESCO's complete line of head and eye safety equipment *always* benefits users—prevents injuries, saves lives, saves dollars and earns profits.

More than that, CESCO offers exclusive features which produce added benefits.

Check the equipment shown on this page for specific examples. And, check with a CESCO man to find out more about the CESCO line.

New Acid Hood
Guards against nitric, sulphuric, hydrocholoric, acetic, hydrofluoric and carbolic acids. Has air-feed unit. Write for Bulletin A.

New Face Shields
Sturdy, protective plastic window—replaceable in 15 seconds! Extra comfortable, with contour-shaped headgear. Write for Bulletin F.

Seamless Welding Helmets
Seamless CESCO helmets, provide positive protection for welders. Contour-shaped, easily-adjusted headgear. Lift-front style also shown. Write for Bulletin E.

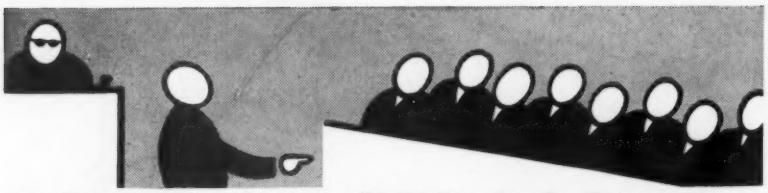
New CESCO Goggles
Coverlite Goggle, with replaceable safety lenses, extremely light in weight. Spectacle types available in many styles. Write for Bulletin C.

No. 94 Respirator
Protects against lead, silica and nuisance dusts. Permits easy breathing. Approved by Bureau of Mines. Write for Bulletin D.

CHICAGO EYE SHIELD COMPANY • 2308 Warren Boulevard • Chicago 12, Illinois

CESCO

CESCO FOR SAFETY



RIGHT OFF THE DOCKET

The trend of litigation on workmen's health and accident compensation is reflected in these briefs on the latest and most representative cases coming to trial in the intervals between issues. Familiarity with this trend is important to every industrialist. Clip cases and file for future reference.

Employee Insists On Personal Doctor

ON OCTOBER 23, 1944, at 9:30 P. M., while working in the employer's coal mine, claimant was struck in his left foot by a jack pipe. Fellowworkmen helped him out of the mine and took him to the company's physician, Dr. F. W. White.

The doctor made no inquiry as to how the injury occurred, and merely bathed the foot in hot water, applied a mercurochrome pad, bandaged it and sent claimant to his home seven miles away with instructions to bathe the foot in hot water and return to work in two days. That night, claimant's condition worsened, and intense pain prevented sleep. He lived alone and had no telephone. The next morning, he crawled to a window and called to a neighbor, who sent his sister. She summoned the family physician, who arrived at 9:00 A. M., and found the injured member in serious condition. The doctor immediately took the claimant to the hospital. Claimant's leg was swollen, discolored and gentle manipulation produced considerable pain. X-rays disclosed a longitudinal fracture of the fibula and of the lower third of the tibia extending into the joint, a traverse fracture of the mallcolus, all of them complete and extending through the bone cortex at both ends.

An orthopedic surgeon was called by the family physician, who read the X-rays and assisted in the treatment. The sole object to the claim is that Shank refused to allow the employer to furnish medical services within the Workmen's Compensation Act in force at the time. The company, after the claimant was admitted to the hospital and after the X-rays had been taken, the leg dressed and splint applied, offered the services of Dr. White or a Dr. Barchfield. The claimant told the company that he wished to retain the doctors who were treating him. This was predicated not only upon their satisfactory service but also upon claimant's prior unfortunate experience with Dr. White. Claimant sustained an accident to his arm and fingers about a year before the incident in question, which was treated by Dr. White, representing the company. Later it became necessary for the family physician to open the arm, suture the nerve, and apply a cast. The claimant then fully recovered.

Question arises did claimant's action bar recovery for the medical bills. Court concluded that under the circumstances involving this case that the claimant was entitled to a recovery for the medical bills. Employee is not required to continue suffering pain and remain incapacitated without seeking other medical advice, where the company's doctor merely made a cursory examination. It is not contended that the company's doctor must be infallible in determining the nature or extent of an employee's injury or ailment, but he should make such an examination and exercise such professional skill, as is reasonably required.

In the instant case, he made a superficial examination and treated lightly a serious condition. If the employer's doctor is shown to be completely mistaken in his diagnosis and treatment, an injured employee will not be deprived of his rights to have the services of a reasonably competent medical man in compliance with the spirit of the statute. It appeared that in the instant case, that where an injured man is brought into a physician's presence by two co-workers, that in itself indicated the seriousness of the injury and would, therefore, call for more than a superficial inspection of the injured member.

The doctor's advice to bathe the foot and to return to work within two days indicates failure to diagnose the extent of the injury, or to realize its inherent possibilities. Doctor stated that he intended to make an X-ray, but had no contact with him until he saw him in the hospital.

Shank was confronted with an emergency when he summoned his family physician and his preference for his family physician is readily understandable. His previous experience with Dr. White must be taken into account. It is understandable that the claimant could not expect such care as he was deserving of if he continued with the medical services provided by the company doctor considering the intolerable experiences he had already suffered because of it.

Shank vs. Consolidated Coal Company,
Superior Ct. of Pa., July 17, 1947,
54 Atlantic Reporter, second series,
Page 289

Employee Refuses First Aid Treatment

WILLIAM KILGUS files application for adjustment of a claim, alleging that he sustained an accidental injury on May 2, 1944, arising out of and in the course of his employment. He contended that he struck his right foot against the assembly line and suffered a cut on the outside of the foot, just below the ankle. There were no witnesses to the accident. Kilgus immediately reported the accident to the shop supervisor, and the supervisor, admitted that he had been so notified. He also acknowledged the fact that during March and April, Kilgus suffered frequent swelling and draining in his foot; that after the alleged accident, he told Kilgus to report to first aid, and that he refused so to do.

Company resisted the claim first on the theory that there was no accidental injury arising out of and in the course of employment, and second, that the award for medical and hospital services is without foundation because Kilgus elected to engage his own physician and hospital services at his own expense.

As to the first complaint, the Commission finds that there was an accidental injury sustained while in the course of employment and

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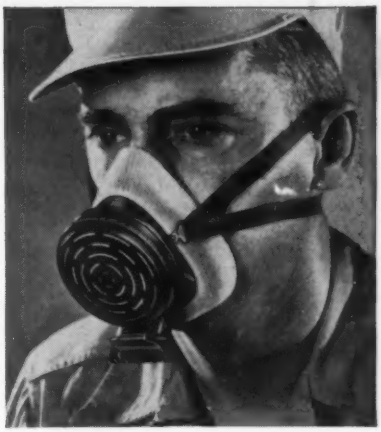

WITH THE CHEMICALLY TREATED FILTER

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GREATER EFFICIENCY!

Visualize dust as small as 24 millionths of an inch diameter which the R-2000 filters out and you will appreciate the impetus given to respiratory protection which this new respirator provides! Comfort combines with protection, too, because the compact, chemically treated felt filter is as efficient as previous filters 8 times its size — thus permitting the use of a smaller filter container for increased front and side vision and greater wearing ease.

Other advantages include no increase in low breathing resistance — disposability of the filter — gauze pre-filter for extending filter life by barring the passage of larger dust and dirt particles. Special lightweight face shield may be used with the R-2000 to protect eyes and upper face. The respirator has the approval of the Bureau of Mines.

AO has a complete line of respirators for protection against light concentrations of gases and vapors.

*As compared with similar untreated filters.

American Optical COMPANY — *Safety Division*

SOUTHBRIDGE, MASSACHUSETTS • BRANCHES IN PRINCIPAL INDUSTRIAL CITIES

arising out of the employment, notwithstanding the absence of a witness.

As to the medical expenses, the Workmen's Compensation Act imposes a mandatory duty on the employer to furnish first aid and all reasonable expenses thereafter required, and yet permits the employee to elect to procure his own physician and hospital services at his own expense.

The fact that the claimant refused to go to the first aid station following the accident does not follow that the claimant's rejection of the proffered first aid treatment and his visit to his own physician amounted to an election to forego his rights to all necessary surgical and hospital services.

At the time of the accident, it appeared that the injury was of a minor nature and that only first aid was required. It could not be foreseen that the laceration would result in the foot and leg becoming so infected and swollen as to twice require major surgery. Claimant's action merely absolved the Defendant company from any liability for the expenses of first-aid treatment, but remaining liable for all medical, surgical and hospital services of consequence which might thereafter become necessary, unless these, too, were subsequently refused by the claimant.

The record revealed, however, upon learning that amputation was necessary, claimant made a request for surgical and hospital services to Becker, an employee of the company's insurance deparment, and the request was refused.

In any event, by virtue of the shop supervisor's knowledge that claimant's foot was so badly infected that he was forced to quit work on May 12 and the notice to Becker that amputation was necessary, defendant company was in possession of facts from which it must be reasonably be presumed to have known that claimant required surgical and hospital services.

Claim allowed.

Caterpillar Tracter Co. vs. Industrial Commission, Supreme Ct. of Illinois, Sept. 18, 1947, 74 North Eastern Reporter, Second Series, Page 787

THIS THIN TOOL STEEL CORE

is welded between supporting walls of softer metal which wear down first, leaving the hardened core sticking out—always sharp because it is thin.

Any other spike, if made with only one kind of metal, will wear as dull as the full thickness of the spike.

Dull spikes are a hazard. Constant inspection and sharpening is expensive and does not fully eliminate the danger. SAFE-HI stops both expense and the hazard.

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Injured In Car Hired By Employer

HELEN HOFFMAN at the time of her injury was employed by the Mountain States Telephone and Telegraph Company as a switchboard operator at Fort Harrison, adjacent to Helena. The employer had an agreement with the claimant that the latter would be transported to and from Helena to Fort Harrison at the expense of the company. The employer had a contract with the Helena Cab and Bus Company for the daily transportation of the claimant and other employees of the Telephone Company, for the cost of $1.50 per round trip with the understanding that trips for such purposes would be made on such schedules to accommodate the Telephone Company's regular shifts and that the Cab Company on such trips were to transport the Company's employees exclusively.

Except for the time schedule, the telephone company had no control over the operation of the Cab Company's vehicles, such as the rate of speed, the route to be followed, the selection of drivers, or the mechanical maintenance of the vehicles. The telephone company operated as a licensed common carrier of passengers.

HERE'S A *Safer Way*

SAFETY ILLUSTRATED

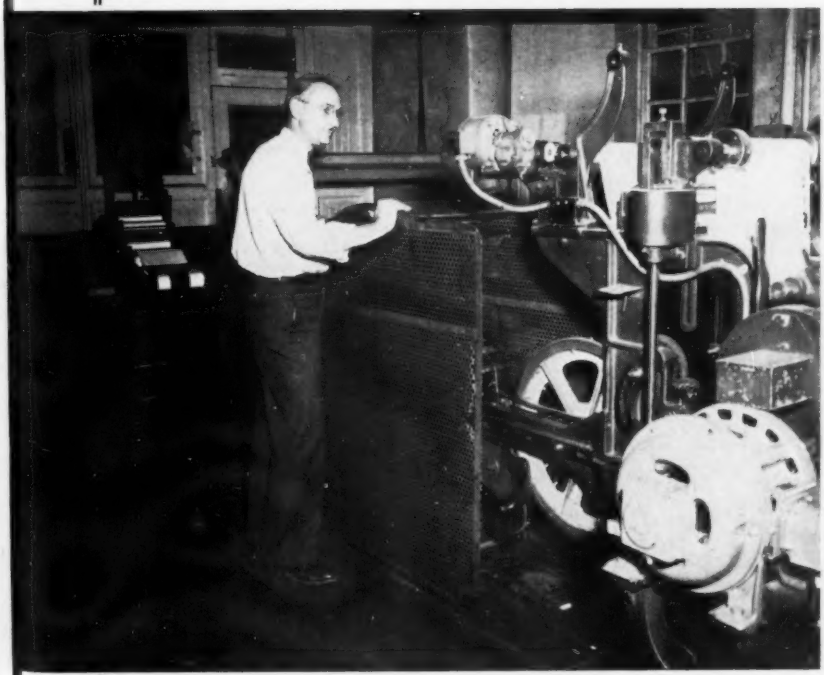
NUMBER 13

Here are new pictures for your photographic safety manual. Clip and save.

•

Eyes protected! This man wears goggles with lenses designed to protect his eyes from harmful light rays. Eye burns can be serious. Don't get in the habit of wearing goggles on your forehead or around your throat. Wear them over your eyes!

•



The guard is being put back—always a safe practice. No matter what may be changed, repaired, or removed, always put the guard back in place. Management goes to considerable expense supplying guards for the machinery with which you work. Oftentimes the guards must be "tailor-made" to fit the hazard. The time, expense and effort is wasted if you, the employee lose a hand or an arm because you have neglected to replace the guard.

•

(Leeds and Northrup Co. Photos)

The claimant sustained injuries as a result of a collision of the taxi-cab while riding to work. The question for consideration is whether the claimant is entitled to a recovery under the Workmen's Compensation Act only or whether the situation permits recovery as well as against an independent tort-feasor. The Cab Company contends that recovery is limited to the Workmen's Compensation Act Provisions by reason of the fact that the injuries occurred while claimant was engaged in the performance of her employment and that the cause of injury was connected with her regular employment and necessarily followed as incident thereof.

There is no question that the accident occurred in the course of claimant's employment and she is, therefore, entitled under the Workmen's Compensation Act, but it does not necessarily follow that the cause of the injury has a direct connection with her regular employment and that it arose out of or necessarily followed as an incident of such regular employment.

It was concluded that the claimant was entitled to a recovery against the independent tort-feasor since the cause of injury had no direct connection with "regular employment and did not arise out of or necessarily follow as an incident thereto". The injuries were caused by an act or omission of a person other than her employer.

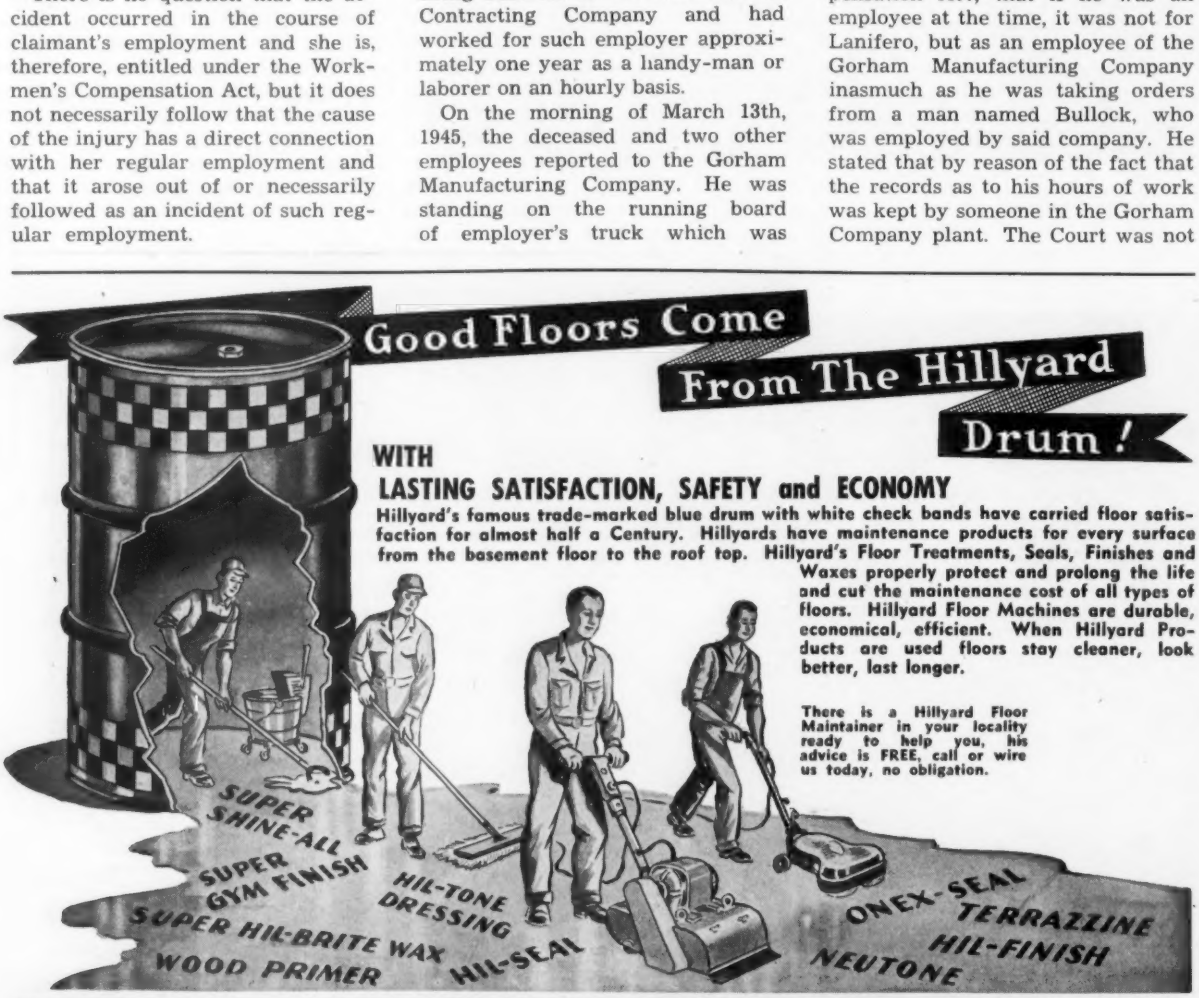
Hoffman vs. Johnston, et al,
Supreme Ct. of Montana, June 13, '47
181 Pacific Reporter,
Second Series, Page 792

Part Time Worker Injured On Job

CARL JOHNSON was a member of the city police force, who was permitted by the City Government during the war emergency to engage in other work in his free time. He was employed by Rose Lanifero, doing business as the Rhode Island Contracting Company and had worked for such employer approximately one year as a handy-man or laborer on an hourly basis.

On the morning of March 13th, 1945, the deceased and two other employees reported to the Gorham Manufacturing Company. He was standing on the running board of employer's truck which was driven slowly a few hundred feet from the cafeteria to the carpenter shop, where an employee of the Gorham Company was to tell the men what work they were to do that afternoon. As the truck was proceeding at a speed of from 5 to 8 miles per hour, and was gradually stopping in front of the carpenter shop, the deceased suddenly fell from the running board toward the front of the truck, landing on his back and striking his head on the macadam road, as a result of which he died two days later of a skull fracture.

The employer contended among other things that Johnson being a mere casual employee was not protected under the Workmen's Compensation Act; that if he was an employee at the time, it was not for Lanifero, but as an employee of the Gorham Manufacturing Company inasmuch as he was taking orders from a man named Bullock, who was employed by said company. He stated that by reason of the fact that the records as to his hours of work was kept by someone in the Gorham Company plant. The Court was not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in agreement with the above stated contention of the company. The mere fact that he was only a part time worker did not make him a casual employee, as defined by the Workmen's Compensation Act. There was no question that he was the employee of Lanifero and not of the Gorham Manufacturing Company.

One further question was raised and that is whether the facts as disclosed constitute an accident giving rise to compensation. It is not clear from the record as to what caused Johnson to fall from the motor vehicle, as the truck was going slow, did not turn or stop suddenly and did not go over any rough place in the road. A mere inference that the decedent lost his balance and that he threw himself in the way of the truck with the idea of committing suicide appeared to be fantastic in nature. Nothing in the record indicated that the claimant was ill and under the circumstances, there was no justification from withholding an award from compensation as the accident did happen during the course of his employment and as a result of his employment.

Johnson vs. Lanifero, Supreme Ct. of R. I. July 30, 1947
54 Atlantic Reporter,
Page 412, Second Series

Employer Knew Of Epiliptoid Condition

CLAIMANT'S duties consisted of selling men's apparel which work imposed the additional duty of making trips up and down flights of stairs to the repair and tailoring departments and to the basement to get clothes from the so-called "layaway" department. He began his work at 8:30 A. M. and the accident occurred at 6:00 P. M. No one saw claimant at this time of the accident. He was last seen approaching the men's room. Several of the employees heard two bumps in quick succession. They quickly approached the claimant and found him near a table with a sharp corner. This table was used as equipment in the establishment. The claimant was then unconscious. Blood was flowing freely from a wound on the head. He was carried to the hospital and treated for a severe fracture.

There was no question that his epilptoid condition had previously caused epiletic attacks. The employer knew of the condition of the claimant as he had these attacks in the store on previous occasions but with little consequences.

Compensation is resisted on the ground that although the accident occurred while claimant was in the course of the employment, the injuries did not grow out of the employment, but as a result of his epiletic attacks. That as a consequence there is no casual connection between the accident and employment. Contention is based on the theory that the evidence failed to indicate that the epiletic attacks were caused by exertion peculiar to the employment proximate enough in time to be a contributing proximate cause of the attack.

The only connection of excessive exhaustion proven was the stair climbing. A hypothetical question presented to the physicians all answering in the affirmative indicated that the making of several trips up the stairs and down would probably bring on an epiletic attack by reason of excessive exhaustion.

The case was resolved in favor of the claimant and an award made as the accident did occur while in and as a result of his employment. This regardless of whether the epiletic attack was precipitated and was produced by excessive exhaustion peculiar to ailment of employee.

United States Casualty Company, et al vs. Richardson,
43 Southeastern Reporter,
Second Series, Page 793 Court of Appeals of Geo., Dv. 2, June 12, '47.

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Why risk costly damage suits resulting from accidents on slippery floors when VESTA-GLOSS provides *slip-resistant safety* combined with delightful floor beauty and long wear.

VESTA-GLOSS is entirely different from and better than customary floor waxes and finishes. Provides slip-resistance without being sticky or gummy. Amazingly durable—does not flake, crack or powder off. Easily applied . . . and easily cleaned. There's no better finish for ANY type of floor. Write us for free demonstration.

The ONE Floor Finish that provides ALL FIVE of these floor maintenance essentials (1) Slip Resistance (2) Wear Resistance (3) Water Resistance (4) Lustre (5) Self Leveling.

Approved by Underwriters' Laboratories

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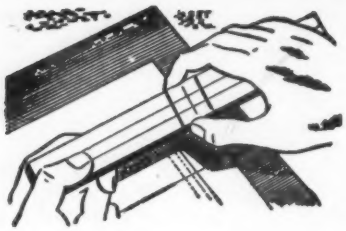
A highly concentrated liquid cleaning compound for floors and woodwork. Cleans better, safer, easier—at lower cost.

VESTAL ELECTRIC FLOOR MACHINE

Scrubs and polishes faster. Easy to operate. Exceptionally quiet. Sturdy, perfectly balanced construction.

VESTAL INC. ST. LOUIS • NEW YORK



New PRODUCTS

For further information on any of these products, simply list the key number at the head of each item on the special post card enclosed with this issue.

NP 251—WATER COOLER—A new self-contained 10 gallon capacity drinking water cooler, featuring an all stainless steel top and drain assembly and an automatic water-flow regulator, is now being manufactured by Temprite Products Corporation. The bubbler is designed to

give maximum sanitary protection, it being impossible for the user's lips to come into direct contact with the water nozzle. Water flow is automatically regulated to provide a stream of drinking water without annoying fluctuations, the manufacturer states. Unit may be obtained with either hermetic or open type condensing units to handle special or unusual applications.

NP 252—ADHESIVE GAUZE—Designed to protect the fingers or other parts of the hand from painful skin burns, bruises and other injuries, a special adhesive gauze tape is announced for use by all classes of workers in practically every field. GAUZTAPE is manufactured by the Modern First Aid Necessities Co.,

and is said to be oil resistant and to adhere only to itself without leaving gummy deposits on the skin. Actually a combination of gauze and tape, the product may be applied to the fingers, thus providing immediate protection for all manner of assembly line workers, sheet metal workers, etc. GAUZTAPE is supplied in rolls 1 inch wide and 15 yards long, 2 inches wide and 10 yards long, or cut to size upon request.

NP 253—VOLTAGE TESTER—Ideal Industries, Inc., announce a new Voltage Tester for testing continuity of circuits (AC or DC), 110 to 550 volts AC, 110 to 600 volts DC, blown fuses, grounded side of line, grounds side of motor or appliance, excessive leakage to ground, frequency (25 or 60 cy.) and DC polarity. This new Tester eliminates the possibility of error and danger present when using an old-fashioned test lamp. The unit is sturdily constructed and encased in an attractive, streamlined, plastic case, has easy-to-read scale calibrated from 110 to 600 volts, overall length is 6".

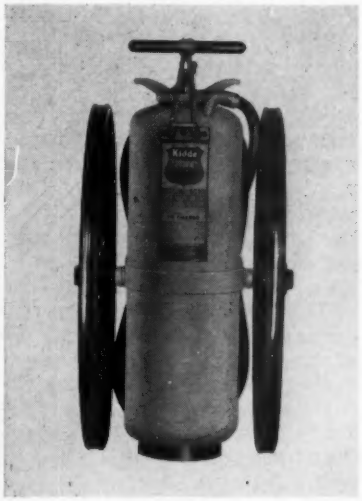
NP 254—SKIN CLEANSER—An entirely new powdered skin cleanser, STEROPAC, has recently been announced by Skotch Products Corporation. A pH of 6.5—approximately that of human skin—eliminating certain primary irritants found in conventional more alkaline products, with superb emulsifying and cleaning agents, which thoroughly and quickly removes industrial grime and grease, are advantages listed by the manufacturer.

NP 255 — INDUSTRIAL SMOKING UNITS—Standard Industrial Products Co., have completely redesigned their popular SIPCO "Dunking Stations." Most pronounced change is in the canister. Instead of bonderized steel, the canister and lid are now made of cast aluminum. The manufacturer points out that this eliminates rusting and prevents denting and bending from rough handling. Three types of units are available to assist industry in controlling a safe and sanitary smoking program. Canister, sign, base and standard may be used as a complete unit, or the canister and sign may be mounted on walls, columns or machines without standard, or the canister may be used alone. Cigars, cigarettes and matches are instantly

extinguished with the SIPCO "Dunking Station", the canister of which is partly filled with water.

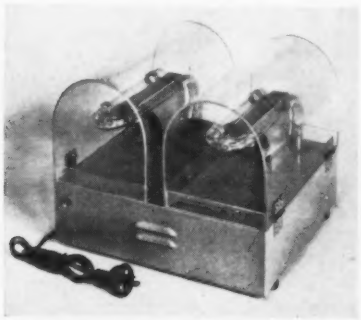
NP 256—WHEELED FOAM UNIT—A new 40 gallon foam fire extinguishing engine is announced by Walter Kidde and Company, Inc. Capable of greater foam output with automatic mixing controls, the new

unit is a small fire department. Discharging 450 gallons of fire-killing foam, the unit will smother both



Class A (involving ordinary combustible materials) and Class B (flammable liquids) fires. Unique metering control mixes solutions in measured quantities. Mounted on 50-inch wheels with 2½ inch steel tires, the extinguisher can be moved rapidly and easily. Hose rack carries 50 feet of 1¼ inch coupled chemical hose with a shut-off discharge nozzle.

NP 257—SHOE STERILIZER—The GERMASTER Shoe Sterilizer is claimed by the manufacturer, O & S Products, Inc., to destroy "athlete's foot" germs in the shoe by means of ultra violet rays. The unit operates at a low cost and takes only a few minutes to perform a thorough



disinfection. It is not necessary to observe a "waiting period" before using the treated footwear as there is no harmful residual radiation.

NP 258—ROOF VENTILATOR—Red Cap Spinner ventilators, made by the Warner Ventilator Co., are now equipped with step type ball bearings. The vertical, machined shaft on which the revolving head of blades are mounted is inserted in a tube, filled with weather-resistant lubricant, and rests on this bearing assuring easy propulsion of the unit

SOLID RUBBER LINK MATS

STANDARD OR SPECIAL SIZES

CORRUGATED FOR EXTRA RESILIENCY, COMFORT AND SAFETY

ELIMINATE FATIGUE
INCREASE EFFICIENCY
REDUCE ACCIDENTS

Highest quality solid rubber links highly resistant to oils, acids, chemicals. Woven on rust-proof, 12 gauge spring steel wire, AKRO-MATS give years of service, return big dividends in employee satisfaction wherever workers stand or walk. Special or stock sizes of AKRO-MATS lie flat, roll up easily for cleaning. Plain black or with colored diamond designs if desired. Write today for prices.

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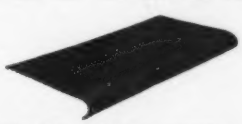
CURVED NOSE
AKRO-TREADS



• Thousands of strands of tough cord floating in live black rubber give long life to this industrial tread. ⅜" thick, 9" wide in lengths 18", 24" and 36". Other sizes available.

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BUXBAUM Company
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If industrial skin irritations are among your problems, let us send you literature and a generous sample of Tarbonis. In many a plant in your industry Tarbonis (liquor carbonis detergens in a vanishing type cream, odorless, greaseless, non-staining and non-soiling) has proved a remarkable aid against reactions from many irritants and reagents used in industry. Leaves no trace upon the skin, does not interfere with work. It may solve your problem, too.

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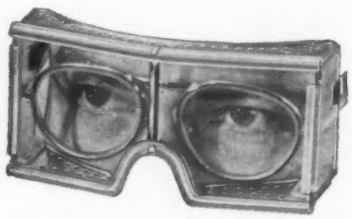
from the slighest breath of air. The spinning blades create a vacuum, thereby sucking out hot air, gases, fumes or other contamination from garages, foundries, plating plants, etc. Blades are so shaped and spaced so as to emit contaminated air without permitting the entrance of rain or snow.

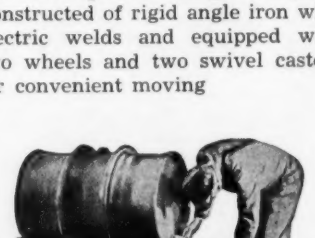
NP 259 — EYE PROTECTION FOR WORKERS WEARING GLASSES— The new Watchemoket No. 30 Eye Savers has been designed to fit comfortably, easily and over all types of glasses. The frame is molded and capable of withstanding heavy impact. The manufacturer points out that there is no need to throw away the whole

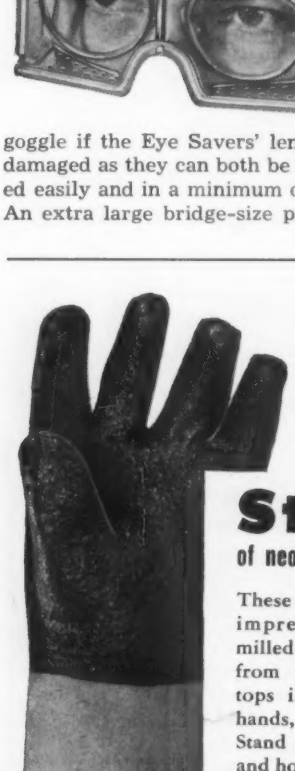


goggle if the Eye Savers' lenses are damaged as they can both be replaced easily and in a minimum of time. An extra large bridge-size provides universal fit, comfortable for day-long wear. Exceptional light weight of the goggle encourages worker's cooperation.

NP 260—ANTI-SLIP FLOOR COATING— OIL-DRI CORPORATION announces the marketing of *Oil-Dri Abrasive Anti-Slip Floor Coating.* The new product, compounded of a synthetic resinuous material with an evenly dispersed abrasive, reduces hazardous slipping and weather wear on all surfaces. The abrasive coating is completely resistant to water, oil and grease and adheres easily to any type of flat surface. Standard color is grey but green, blue and red is available upon special order.

NP 261 — DRUM AND BARREL DRAIN STANDS— Industrial Products Company announces a new Drain Stand for handling all sizes of drums and barrels. With this unit, one man can tilt a drum from a vertical position on the floor to a horizontal elevated level for draining. Prevents personal injuries, saves time and allows complete drainage of liquids. Constructed of rigid angle iron with electric welds and equipped with two wheels and two swivel casters for convenient moving





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All neoprene oil-acid proof Stanzoils have amazing new positive-grip fingers!

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Synthetic Rubber Division

THE PIONEER RUBBER COMPANY

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OVER 25 YEARS OF QUALITY GLOVE MAKING

Magnifier for Machining on Band Saw

This type of transparent shield not only provides protection to the operator's face and eyes from flying bits of metal, chips, etc., but permits close inspection of the job in hand because of the magnifier which is used as the shield. The glass is shatterproof and aids job efficiency by contributing to a sense of personal safety.

metal products, the record was one injury for every 76 women; in fabricated metal products, one in 155; and in textiles and cotton yarns, 1 in 186.

In most of the industries studied, over 95 per cent of the injuries occurred to production workers.

Temporary Disabilities High

Over 95 per cent of the injuries recorded in this survey resulted in temporary disabilities. Among the 4,072 injuries to women, six were fatalities, 0.2 per cent of all women's injuries. Permanent disabilities received by women totaled 184, or 4.5 per cent of all women's injuries. Comparable figures for men were 85 fatalities and 884 permanent disabilities, which were 0.4 per cent and 3.8 per cent, respectively, of their total number of injuries.

Of the six fatalities to women, two occurred in the apparel industry, two in iron and steel industries, and one each in the electrical equipment and textile groups.

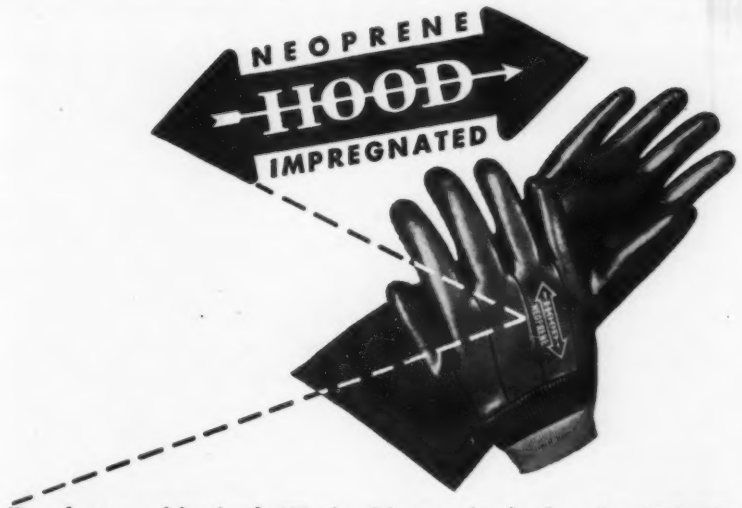
Manufacturing Accidents Highest

Accounting for half of the women reported in the Bureau analysis were four major industry groups: Iron and steel, textiles, electrical equipment, and machinery (except electrical). In iron and steel, women were predominantly engaged in the manufacture of fabricated metal products and stamped and pressed metal products. In textiles, 80 per cent were employed in the production of textiles and cotton yarn. In the third largest group, electrical equipment industries, women were occupied principally in the making of industrial electrical equipment, radios, phonographs, and communication and signaling equipment. In machine manufacturing, nearly 92,000 women were employed on various types of industrial machinery.

Conclusion

Wherever the injury rate is found to be high, the establishing of better safety programs and practices will benefit all workers involved. Women become victims of industrial accidents which could easily be presented if certain rules were inforced. Light, loose, and highly flammable wearing apparel—flimsy street shoes, and jewelry and rings should not be worn while on the job. Approved types of hair nets, work clothing and shoes, and adequate personal protective equipment will, if worn, prevent many accidents involving women.

FOR SAFETY PLUS



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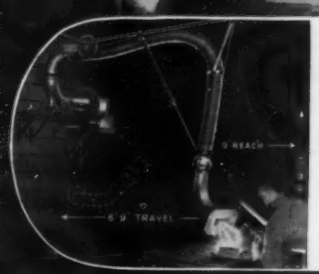
A Division of the B. F. Goodrich Company



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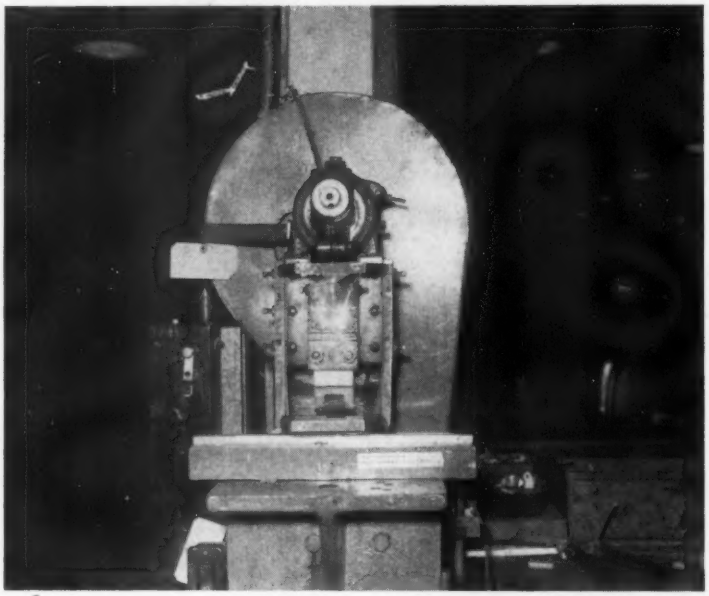
manufacturers and Engineers
PATENTED Sand Blast and Dust Collecting Equipment

RUEMELIN FUME COLLECTOR

A 3888-½R3

This transparent guard used on a numbering machine at the Fisher Body Division of General Motors Corporation eliminates the hazard to the operator of placing individual pieces approximately one inch long under the die with his



fingers. A longer anvil was installed which permitted parts to be fed into the left side. These numbered parts fall out at the right side into a tray which not only eliminates the hazard to the operator but considerably speeds up the entire operation.

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Write for literature and prices on all models.
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DIVISION OF THE BURDETT OXYGEN COMPANY • CLEVELAND, OHIO

SLINGS IN INDUSTRY
From Page 13

of rope, type of object being lifted, use or non-use of packing material under the rope and sharp metal corners, the rope's diameter and the size and strength of the hook. All these factors have a direct bearing on safe load, in addition to angle of sling and new strength of the rope.

Ideal sling material from the viewpoint of flexibility, manila rope is, however, more easily damaged than chain or wire rope. It must be protected against dampness, oils, acids and dry rot. If stored for a year or more, the rope should be on a grated platform so that the air has free access to it.

Good rope is pliant and yellowish or greenish grey in color, with a noticeable luster. Dark or black color, indicate fermentation during the curing process and fibres of this color will not have full strength. For sling purposes, rope of three strand construction is recommended because of its higher strength, better equilization on sharp bends and greater splice efficiency.

Chain Slings

Chain slings have many advantages, chief of which is flexibility and the grab hook feature permitting adjustments even where only an inch or so is required to balance the load. Chain slings alone are suitable for hot loads and pickling operations. The same is generally true of foundry work where the presence of wet sand and splashings of molten metal makes the use of anything else hazardous.

Single and double sling chains are the two types in general use, though there are many different types depending upon the use for which it is intended, type container being lifted, and operation being performed. Multiple chain slings are generally used for handling casks, barrels, or drums, but they can also be used for handling other types of containers.

Unless special protective coverings are used, chain slings are likely to damage finished surfaces. There is also the tendency for the chain links to become hardened by repeated heavy-duty service and thus to snap without warning, unless they are frequently annealed. Slipping of the chain links also sometimes causes heavy stress on the crane or boom. Hence, links should be straightened before lifting and inspected frequently (as so all other types of slings) for fractures or breaks.

Inspection

When chains are inspected they should first be cleaned thoroughly to make defects more easily detected. The chain should hang in a vertical position, if practical, and should hang reasonably straight if links are not distorted. Sling chains should be examined for:

1. Battered or bent links
2. Cracks and distortion of rings and hook eyes
3. Stretch
4. Wear
5. Gouge marks
6. Damaged welds
7. Links with peened, hammered or polished surfaces which indicate the chain should be annealed.

Annealing Chain Slings

Since sling chains are often used where failure might endanger human life or property, they should be annealed as often as careful inspection shows this to be necessary. Annealing of a chain is advisable when inspection shows the surface of individual links of the chain, or the chain in general, to have been cold worked by use. A cold worked chain is indicated by battered, peened, polished or gouged links.

To anneal, the iron chain should be introduced into a uniformly heated oven, with the heat between 600 and 900 Fahrenheit. The temperature of the oven should then be raised to between 1200 and 1300 Fahrenheit, taking two hours to raise the temperature to that point. The temperature should then be lowered to 800 or 600 Fahrenheit, which should require another two hours. The entire process should take about four hours.

Chain manufacturers are fully equipped to anneal chain slings, and should be permitted to do so rather than having the job done in the shop. These manufacturers have heating ovens that are adequately controlled and the work is done under technical supervision. The manufacturer should also be called upon to do any other repair work on chains, such as replacing links, etc.

Handling Loads

To protect men and the load, workers should be informed of the importance of the following simple rules:

1. Don't overload a chain sling
2. Take up slack and start load slowly
3. Don't jerk chain from under load
4. Be sure load is balanced
5. Distribute load evenly on all legs
6. Avoid "impact loading"—a load dropped suddenly on the chain
7. Indicate the safe load for each chain with a metal tag, or stamp in on the ring or hook, or paint the ring or hook a color which is identified with the safe load figures on the chain rack.
8. Inspect regularly. An important fact to remember is that no chain, regardless how well it is made, is stronger than its weakest link.
9. Lift loads from the center of the hook; never from the point.

Sling Care

Men engaged in sling chain work should be instructed in the following safe practices to prevent injuries to the chain and accidents that might result from neglect or improper use:

1. Shake out twists, knots and kinks before loading.
2. Protect chain against sharp corners or edges. Use pads.
3. Do not expose chain to corrosive fumes or liquids.
4. The diameter of a sheave or winding drum for a short link chain should be 15 to 20 times the diameter of the stock used for the link. If long links are used increase the size of the drum or sheave. The shape and size of the groove should allow the chain to work smoothly.
5. Do not splice broken sling chain links by fastening ends together with a bolt, or by passing one ring through another and inserting a bolt or nut to hold it.

Chains should be cleaned regularly. Dust, dirt and grit should be removed at inter-link points to prevent excessive wear. If chains that operate over drums or sheaves are lubricated, the life of that chain will be lengthened. Chain manufacturers can supply proper lubricants for this purpose, though a good lubricant consists of a grease or heavy oil mixed with graphite. The chain should be kept slack during lubrication and care should be taken that the lubricant is brushed well in between ends of links.

Wire Rope Slings

Properly designed and fabricated wire rope slings have many advantages. Wire rope began to be considered for sling work about 1910 and since that time has established itself in a multitude of uses, ranging from light to extremely heavy lifting jobs. Bridge builders and structural steel erectors were pioneers in its use, but now wire rope slings are also used in one or another phase of the manufacturing operation of nearly all industries.

The braided structure (the idea of employing endless ropes of opposite lays which are initially prepared for entrance into a braided

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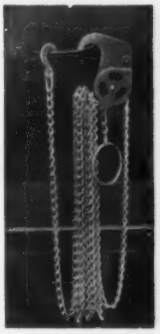

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Check these features of the famous Olympic heavy duty work glove (No. 4004), typical of the outstanding Olympic glove line. Heavy leather palm and fingers made of the best side cow split leather... continuous one-piece canvas back reinforced with leather knuckle strap... full leather thumb... inside palm soft flannel lined... gauntlet strengthened with continuous leather puller. Many other styles available with leather palms and canvas backs. Economical, durable, styled for men or women, Olympic work gloves are used by hundreds of manufacturers wherever work stoppage or slowdown is threatened by hand injury. Remember—there's an Olympic glove for every job!

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OLYMPIC GLOVE COMPANY Inc.
95 Madison Ave., Dept. 16, New York 16, N.Y.

structure) employs the link principle of chain, and can be safely used to handle loads because there is no tendency to spin or rotate when under load. Wire rope does not wear away as do their counterparts of hemp ropes, nor do they lose their strength from exposure in the same rapid manner. Neither are they susceptible to the weakest link ailment of chains. Wire rope is not, however, suitable for hot loads or pickling operations as are chain slings.

Wire rope slings reveal their condition through visual inspection. Surface indication will reveal approaching fatigue long before there is any real danger of actual failure, as the appearance of broken wires clearly indicates the fatigue of the metal and the termination of the useful life of the sling.

Good grade industrial wire rope slings are made to handle loads safely and economically. However, maximum safety and long service life can be obtained only if certain precautions are followed.

Lubrication

The importance of proper lubrication of wire rope can not be overemphasized. Not only does adequate lubrication (manufacturer should be consulted for type of lubricant to be used) prevent corrosion of the individual wires and deterioration of the hemp center, but it also provides a lubricating film between wires and strands so necessary for the free movement of these parts as the rope bends and straightens. Most rope is lubricated during the process of fabrication, but this initial lubrication is usually not sufficient for the entire life of the rope. Periodical applications of a good lubricant during service are required to obtain maximum rope service.

Much damage can be done to slings by carelessly wrapping them around rough, unprotected corners. Not only does such damage shorten the useful life of the sling, but it also reduces its efficiency. Where such conditions prevail it is necessary to reduce the safe working load values in order to maintain safe sling practice. This precautionary measure of reducing safe load values, however, should not be considered the only answer to difficult lifting problems.

Many unnecessary and costly sling problems can be avoided if provision is made in the design to provide suitable lifting surfaces such as lugs, eye bolts, etc. Wire rope manufacturers are ready at all times to advise sling users concerning adequate provision for hoisting the load safely and efficiently.

Proper Use

Slings are designed to handle loads in a specific manner, and the safe loads given in the tables supplied by the manufacturer are based upon the sling being used as indicated. However, certain types of slings may be used for lifting duties other than that for which they were specified. It is strongly suggested that the advise of the manufacturer be obtained before using a sling for a different type of duty than that for which it was designed.

Proper Storage

When a sling is idle for a length of time it should be stored in a clean, dry place and kept well lubricated in order to prevent corrosion. Slings stored in an orderly manner save time in handling and will pay dividends in increased service life.

Periodic Inspections

Slings of reputable manufacturers have ample reserve strength when properly used. However, after a sling has been used for any length of time, it is advisable to inspect for broken wires, kinks, or damaged fittings. If the sling has deteriorated to any extent and is thought to be unsafe, it should be discarded. It is assumed that they should be discarded when the number of broken wires in a distance of one rope lay reduces the original rope strength 25 per cent. The length of one rope lay is equal to six rope diameters, and the section showing maximum wear is always considered. Safe practice would seem to indicate that ropes should be discarded when the number of broken wires per rope lay equals the number of wires in one strand. This applies to all ropes where the broken wires are distributed among four or more strands. The sling fittings in many cases can be salvaged and used on the new replacement slings.

Conclusion

Consideration of safe sling practice involves a study of the equipment itself and the methods of application. Representatives of sling manufacturers should be called in for consultation when management is faced with a sling problem. Workers should be advised of the limitations of the slings they use and should be familiar with the inspection and maintenance procedures involved. They should realize that a sling is an extremely important piece of equipment and that carelessness and misuse might contribute to sling failure, which almost always results in property damage, and oftentimes in personal injury to the workers involved.

TECHNICAL FILE ON METAL POISONING

SAVE THIS VALUABLE REFERENCE MATERIAL: BUILD UP A PERMANENT OFFICE FILE

C 174. TREATMENT. Treatment of all chromium poisoning should be in the hands of a competent physician. Disability is usually temporary and the customary removal of the worker from any exposure or the successful use of preventive measures usually permits him to stay on the job. When the ulcers of the skin or membranes are small and superficial, scrubbing with salt solutions to prevent deeper burrowing is the usual treatment. This is followed by treating the wound like any other similar skin abrasion. When the holes are deep, the imbedded chromium compound first must be dislodged with weak, wet dressings of citric acid, tartaric acid, or any of the several sodium compounds. Sprays are used for the nasal passages. Larger ulcers are sometimes surgically removed in order to shorten the time required for healing.

C 175. PREVENTION. Control of chromium hazards depends upon frequent air tests to keep air concentrations within safe limits. The United States Public Health Service and several individual states have suggested 1 milligram of chromium trioxide per 10 cubic meters of air as a permissible concentration. In the case of chrome solutions, it has been determined that as little as 1 percent of some of the dichromates produces a dermatitis on unbroken skin. Since it is frequently impossible to permit weaker solutions in processes, exposed workers must be provided with personal protection in the form of rubber boots, gloves, aprons, and so on. Departments using chromium compounds should be segregated and considered a quarantine zone for other workers.

C 176. VENTILATING AND EXHAUST SYSTEMS. As in the case of other dust hazards, existing chromium dust and fumes should have adequate exhaust ventilation at the point of origin. General ventilation of the work-room is no less important. Dry materials should be handled mechanically. Good housekeeping procedures include adequate gratings and drains around processes, and daily cleaning after working hours. When dripping is present, floors should be covered daily with fresh absorbent.

C 177. PERSONAL HYGIENE. In the case of chromium poisoning, personal hygiene of the worker is all-important. He should be instructed in the dangers of the product, as well as in the necessary protection and sanitation. Individual towels, hot and cold water, showers, double lockers and separate lunch room facilities should be available and their use enforced. Protective skin ointments of the lanolin type and paraffin oil nasal sprays should be provided. First aid facilities for cuts, scratches, and even slight inflammations should be both adequate and convenient for the worker. The plant chemist, a local laboratory, or the state hygiene department should be called upon to analyze adequately any air samples or chrome solutions.

C 178. INDUSTRIAL ZINC. Zinc, or spelter, is a shining, blue-white, crystalline, brittle metal, with specific gravity of 7.142, melting point 419 degrees Centigrade, and boiling point of 907 degrees Centigrade. It is soluble in acids and alkalies, but insoluble in water. Because of its rust protection properties, it is used in galvanizing iron and steel. When mixed with copper it forms brass, frequently used in the plumbing industry and in bearing metallurgy. The oxide of zinc is a white powder used widely in paints, because it is opaque and covers surfaces well. It is also used extensively in medicine for ointments, soaps and lotions.

C 179. ZINC EXPOSURE. The main result of exposure to zinc occurs as an acute fume fever (zinc chils, brass foundryman's ague, spelter shakes, etc.) that follows inhalation of fumes containing freshly formed zinc oxide. The fever apparently is due to acute destruction or degeneration of the lining cells in the terminal air sacs of the lungs. This destruction is caused by inhalation of the toxic zinc dust.

C 180. SYMPTOMS OF ZINC FUME FEVER. The symptoms of zinc fume fever seldom appear while the worker is still on the job, but usually after he has reached home. He experiences a sudden chill, preceded or accompanied by such symptoms as dryness of the mouth and throat, a cough, a heavy feeling in the chest and sometimes nausea. The chill ceases after a few minutes and profuse perspiration follows. The attack resembles influenza. The body temperature rarely exceeds 102 degrees. By morning the attack is gone and the worker usually feels well enough to return to work. The company physician should pass on all such cases, even though the worker may no longer feel ill. It is known that one attack will develop some immunity, but this immunity is temporary. Cases of zinc poisoning are most common on Mondays, after holidays, and among new employees. No ill effects appear to follow the attack and fatal cases are quite rare.

C 181. SKIN IRRITANT. Zinc chlorides which are used as preservatives, fire repellents, and as soldering fluxes, are also known as definite general skin irritants.

TECHNICAL FILE ON METAL POISONING

SAVE THIS VALUABLE REFERENCE MATERIAL: BUILD UP A PERMANENT OFFICE FILE

In concentrated form, zinc chloride dehydrates tissues even to the point of carbonizing them. On the skin, its corrosive action causes deep burrowing ulcers. Inhalation of powdered zinc chloride will develop perforating ulcers in the nasal partition in the manner of chromium. Less widely known is the danger of inhaling zinc stearate powder. In some cases this has caused fatal pneumonia.

C 182. MISCELLANEOUS HAZARDS. Other reported zinc hazards may be due to associated impurities, such as arsenic, lead and cadmium, each of which is more toxic than zinc. Arsine (gas) poisoning sometimes develops during the process of treating zinc galvanize with acid. Chronic zinc poisoning cases are rare and ther authenticity is usually doubted by the medical profession.

C 183. OCCUPATIONAL EXPOSURES. Chief exposures to zinc poisoning occur in the roasting and smelting of the ore, in zinc and brass foundries, in the melting of zinc with alloys, in welding, galvanizing and junk reclaiming. Fumes are given off whenever zinc is heated near its boiling point, the fumes containing sublimated zinc oxide particles which are dangerous when inhaled. Only the freshly formed zinc oxide creates a hazard, as the inhalation of even very finely powdered zinc oxide has little effect several moments after sublimation. In other industrial forms, zinc is similarly non-toxic except for the caustic effect of the chloride when used as a flux in soldering. Spattered zinc chloride can cause painful burns.

C 184. TREATMENT. Treatment for zinc fume fever consists merely in keeping the victim at rest and comfortably warm during the chill and fever attack. No worker should return to his job without first seeing a physician. The victim of zinc chloride burns should be placed under a doctor's care immediately. Treatment usually consists of warm sodium bicarbonate compresses after the wounds have been cleaned out thoroughly.

C 185. CONTROL. It should be compulsory for workers handling zinc chloride flux to have glove protection. In addition, those who are exposed to zinc chloride powder should be permitted to use cleansing solutions of 5 percent hydrochloric acid under supervision. Soap and water ordinarily will not remove any powder which has adhered to the skin. In controlling and preventing fume fever, proper exhaust ventilation is indispensable if the process cannot be inclosed. The current of clean air in the system should be drawn past the operator and away from him toward his work. Under unusual circumstances, individual masks and respirators may be provided for personal protection. Due importance should be given to education of the worker in regular habits of sanitation, as well as avoidance of undue exposure.

C 186. INDUSTRIAL ARSENIC. Arsenic is a silver-grey metal with specific gravity of 5.7 and boiling point of 615 degrees Centigrade. It is insoluble in water and soluble in nitric acid. The deadly gas arsine is formed wherever, in the use of arsenic-containing acids and metals, hydrogen is generated. Such danger is present in the processes of soldering, etching, pickling and so on. The arsenic compound most common in industrial use is the trioxide. Arsenic is used extensively in the manufacture of insecticides, such as lead arsenate and Paris green, in barnacle paints, dyes, rat poisons, medicines and glass.

C 187. PRINCIPAL EXPOSURES. The principle exposures to arsenic poisoning occur in the smelting of arsenic ores and the manufacturing and packaging of arsenic products. Acute poisoning, due principally to intentional or accidental swallowing of the arsenic compounds, is instantly fatal. The poisoning form usually seen in industry is the chronic type caused by prolonged inhalation and absorption of fine dusts or sprays. Eventually it leads to changes in the nerve and muscle fibers.

C 188. SYMPTOMS. The usual signs are general weakness, headache, skin lesions called "pox," bronze pigmentation of the skin, warts, ulcerations and perforations like chrome holes, excessive sweating, loss of the nails and hair, inflammation of the eyes and mucous membranes of the nose and throat, nausea, vomiting, some diarrhea, muscular weakness and numbness of the extremities. Those working with Paris green have coughs and husky voices, due to continual bronchial irritations, but these signs disappear quickly upon removal from the exposure.

(To be continued)

SCAFFOLD CONSTRUCTION
From Page 11

6. Crossbracing. Use one by six (1 x 6) inch lumber or heavier.
7. Footblocks. At least two (2) inches in thickness.

III. Heavy-Trodes' Pole Scaffold Standard Specifications

1. Uprights.
   a. For heights not exceeding 32' use 4" x 4" lumber or larger.
   b. For heights from 32' to 72' the first 32' shall be not less than 4" x 6" or larger.
   c. Splices on uprights to be at least two 1" x 6" pieces 30" long. Splices to be nailed on adjacent sides of uprights.
2. Ledgers. Use two 1" x 6" boards or larger nailed or bolted to either side of upright or one 2" x 6" board.
3. Ribbons. Directly under ledgers, one 1" x 6" board or larger. Where ledgers are bolted, ribbons may be placed lower.
4. Back railing. Use 1" x 6", 1" x 8" or 2" x 4". Place 42" above platform and nail on inside of upright.
5. Platform. 2" planks not less than 10" wide laid closely together. Planks to overlap at least 1'. Platforms to be 4' in width.
6. Crossbracing. Use 1" x 6" lumber or larger.
7. Footblocks and Sills. Use not less than 2" x 6". When uprights rest upon pavement or sidewalk, the sill shall be continuous.
8. Toeboard. 1" x 6" or wider.
9. Side screens. If the material on the platform is piled higher than the toeboard one or more intermediate back rails should be added and ½" wire mesh or its equivalent shall be provided between the top railing and the toeboard.

IV. General Precautions

1. Carefully check attachments to the building so that the scaffold can not be overturned.
2. Test the planks before using by placing them across two one-foot blocks. Have two men jump up and down near the center of the planks. After testing, the ends of the staging planks should be painted.
3. Watch the foundation under the posts; no scaffold is any safer than its bearings. Cover plenty of area with footblocks and, above all, avoid setting the posts on frozen ground that can give away when in thawing weather.
4. Inspect the entire scaffold at least once daily. It is not at all unusual for other trades to remove crossbracing, or even to saw off one of the parts that might be in the way of their work.
5. Drive nails all the way in. If nails are to be withdrawn, use double headed nails.
6. Protect the scaffold from motor traffic, ready-mix trucks and swinging loads.
7. Provide safe means of access. Avoid long vertical ladders and, where possible, incline the ladders and also stagger them. Where access is from a walkway, install standard handrails along the runway.
8. Above all, make careful selection of personnel to build staging. Only experienced careful workmen should be entrusted with the responsibility of erecting a structure upon which the safety of so many persons depends.

LETTERS
From Page 5

October issue of Occupational Hazards only the Mine Safety Appliances Co. was mentioned. Under the circumstances, it would seem desirable and only fair to publish a correction of my article, listing the United States Service Company as a manufacturer of the tubes also.—Martin Shepard, Chemist, U.S. Department of Commerce.

We are sorry that the United States Service Company's name was not included in the article. At the time Mr. Tilley wrote us, it was not definitely known that Safety Service were going to manufacture the tubes, while it was known as a certainty that Mine Safety Appliances was to start production within the year. Our apologies to all concerned. (P.S. Now we know United States Safety Service Co. is in lost field. See their release in this month's New Product Section!)—Ed.

Fireproofed Canvas

OCCUPATIONAL HAZARDS:

We read with considerable interest an article on page 42 of the November issue of your magazine. This article entitled "Prevent Fires During Construction" covered all the commonest causes of fire during construction. In mentioning precautions that should be taken to prevent such losses, however, no mention whatsoever was made of the availability of fireproofed canvas.

We bring this to your attention not only because we ourselves are so closely identified with the successful treatment of canvas against the hazards of fire, but there are several other competitive treatments which are also available. We feel that you have not given readers a complete list of preventive measures unless you include the recommendation of a reputable fire resistant material for construction covers.—Morris D. van Patten, Advertising Manager, Wm. E. Hooper & Sons Co.

Fireproofed canvas is a valuable contribution to fire prevention. Thanks to Reader van Patten for calling our attention to the omission of this important item in the article "Prevent Fire During Construction." —Ed.

Safety Matches

OCCUPATIONAL HAZARDS:

On page 11 of your November issue I noticed an article, "Safety Matches Rekindle Safety Habits." Noticing the illustration of safety matches at top of page, I wondered if the safety matches wouldn't be "safer" if the striking surface was on the back of the pack. I have noticed several people being burned because the cover was left open on regular type packs and the matches ignited when the single match was struck.—Sidney E. Garry, Davenport, Iowa.

Good point! We are forwarding Reader Garry's letter to some of the match people.—Ed.

Plug for Face Shields

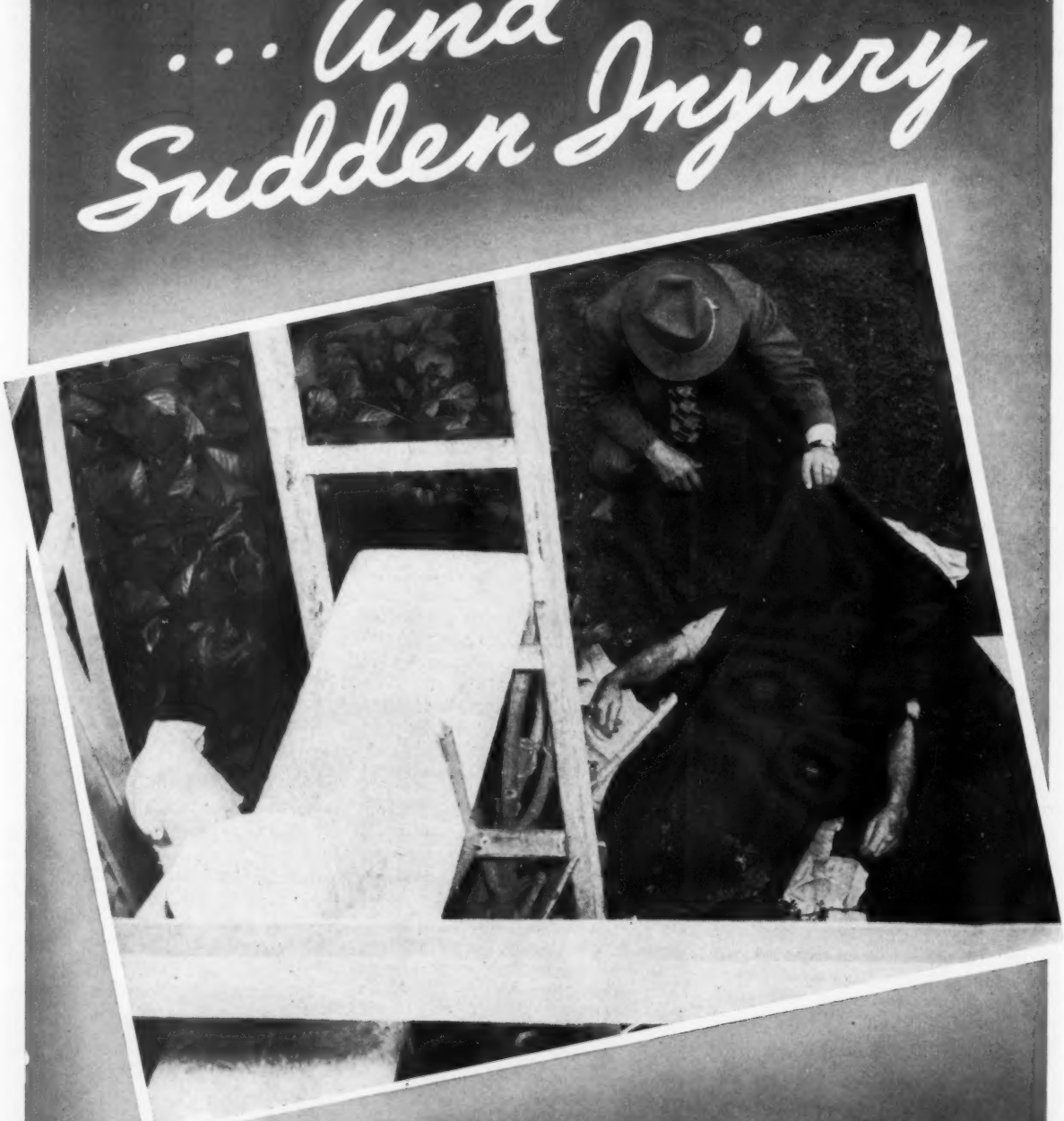
OCCUPATIONAL HAZARDS:

We are enclosing a picture of two of our alloy men who in two days were saved from very serious burns by wearing face shields.

If you desire to use this picture in your magazine you have our permission to do so.—Norman Dress, Personnel Director, Precision Castings Company, Inc., Cleveland, Ohio.

We sure do! And in publishing the picture, we hope that safety engineers all over the country bring it to the attention of employees exposed to similar hazards.—Ed.

. . . And Sudden Injury



A detective covers the body of a painter who had been a steeplejack all his life. Though he had climbed and painted industrial smokestacks, masts of ships and outside walls of tall buildings without coming to harm, death waited for him on a scaffold only six feet above the ground.

And Sudden Injury

THE picture to the left of this column is proof that a man can never become too sure of himself.

The dead painter under the blanket was accustomed to hazardous jobs. All his life he had climbed high buildings, masts of ships and giant industrial smokestacks. But death waited for him on a scaffold only six feet from the ground.

A large number of injuries, both fatal and non-fatal, happen each year because of accidents to workers who have been on a certain job for a long period of time. Nine times out of ten, the hazard which caused the accident was not a new hazard. It was there all the time and it was one which the worker was thoroughly familiar with.

The job or the hazard can be any job and any kind of hazard. The picture to the left happens to illustrate a painter's job with the hazard being, of course, the danger of falling.

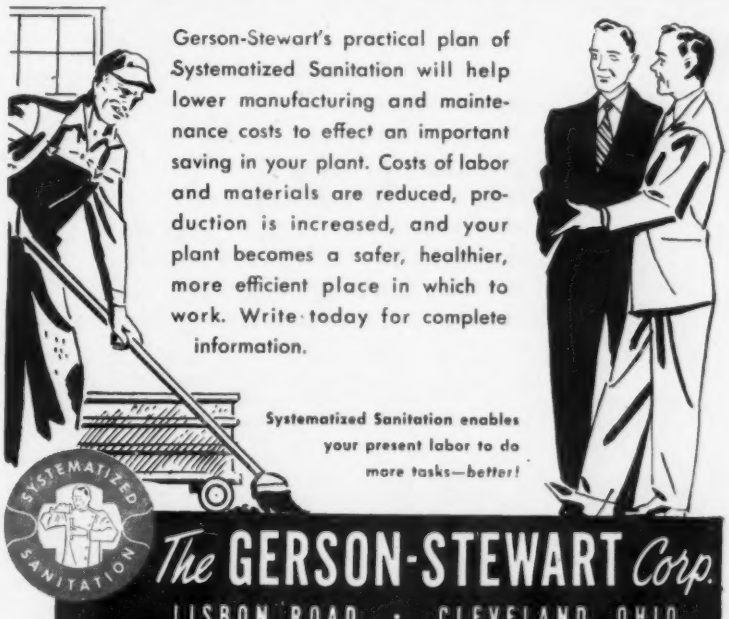
Other jobs and hazards could include grinding operations with its eye hazard; punch press work with hand and finger hazard; warehousing, construction work or other jobs threatening foot safety, and those jobs involving exposure to chemical fumes or dusty atmospheres with resulting respiratory hazards.

The men working on these jobs know all about the hazards involved. They know that some of these hazards cannot be entirely eliminated and that protection is gained through use of personal protective equipment such as safety belts, respirators, goggles, safety shoes, gloves, etc.

The accidents of which we speak happen to men who momentarily discard their protection, or to those men who have gradually come to regard the hazard or hazards lightly. They become too sure of themselves and their luck. The accident might happen to a man who has never really taken the hazard seriously and who has never actually put his protection to use. The man on the grinding wheel, for instance, who wears his goggles around his neck is an example of this.

If such a man boasts that he has worked for ten years on a certain hazardous job without once wearing protective equipment or not observing a certain safety practice, and further boasts that in spite of this he has yet to meet with an accident, he should be told that his is *just ten years closer to having one!*

Cut Labor and Materials Costs with . . .
Systematized Sanitation



Gerson-Stewart's practical plan of Systematized Sanitation will help lower manufacturing and maintenance costs to effect an important saving in your plant. Costs of labor and materials are reduced, production is increased, and your plant becomes a safer, healthier, more efficient place in which to work. Write today for complete information.

Systematized Sanitation enables your present labor to do more tasks—*better!*

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NEW DEVELOPMENT
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Saves 40%
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Industrial tests prove* FIBRE-BONDED *gloves outwear ordinary gloves 5 to 1 on tough jobs . . . 8 to 1 on average jobs!

Special Sureseal treatment of glove palm strengthens FIBRES, SEAMS AND STITCHING . . . produces amazing resistance to abrasion, snagging and wear. Sureseal impregnation will not crack, chip or peel—gives long-lasting gripping surface. Available in knit-wrist, band-top and gauntlet types. Also quotations on treating your cotton, leather or asbestos gloves. Details on request.

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CARROLLTON, OHIO

using these resins may be confronted with toxicological problems. Whereas, the primary manufacturer usually understands and controls the hazards, the "secondary" manufacturer may not understand even though the toxic hazard has been greatly reduced. Manifestations of such lack of control are commonly in the form of dermatitis in establishments unfamiliar with preventive measures that may be necessary.

A great number of modifying agents may be added to the resins themselves, changing their characteristics to meet industries demand. The hazard of systemic intoxication in the basic manufacture of plastics may be associated with these. If such agents are added by the "secondary" manufacturer, he likewise may introduce a hazard. In certain types of plastic manufacture, these agents may be changed from time to time or even day to day. For the very reason that total amounts are small and materials changed frequently they must be watched closely so that some new toxic agent is not added or an old one used again without proper protection of the worker through ventilation, respirators, medical examinations, etc., as necessary.

Modifying Agents Added to Plastics

THESE agents may be classified as follows: fillers; colors; solvents; plasticizers; stabilizers; antioxidants; lubricants; hardeners.

FILLERS: Usually these constitute such materials as wood flour, walnut shell flour, paper, cotton as fibre or fabric, glass fibre, diotomacious earth. These materials do not give rise to a toxic hazard. Even the fibre glass fabric has not caused any remarkable skin irritation. These fillers are added to molding compounds and may be used to build laminated plastic products.

COLORS: Small amounts are usually all that is needed of the colors. They are of the type used in textiles, etc., and would not be expected to give rise to hazards.

SOLVENTS: Many different solvents have been used in plastic manufacture. New ones are being added and old ones discarded. Definite hazards may of course be associated with many of the solvents and it is necessary to know the solvents being used in any given operation in order to protect the workers.

PLASTICIZERS: This likewise is a large group of materials (over 150). They are important in reducing brittleness of plastic. They may be used singly or two or more may be added. Addition of two or more will decrease the "sweating out" sometimes found when only one is added. In some of the more flexible plastics, 50% may be plasticizer. Some plasticizers are skin irritants and may give rise to dermatitis during manufacture. However, one need not expect further trouble after the materials have been reacted, although if the plasticizer should "sweat out" it is possible an individual may react to it. Plasticizers include such materials as natural gums, phthalic acid derivatives, glycol derivatives, glycolic acid derivatives and many others.

STABILIZERS AND ANTIOXIDANTS: Are materials that prolong the life of plastics by protecting them against the effect of light, heat, etc. They include compounds made up of organic and metallic radicals. Some of these are primary skin irritants, and will cause systemic reaction if absorbed. However, the amounts used are small and in common practice, little hazard has been associated with their use.

LUBRICANTS: Oily materials are necessary in certain resins to aid in molding, etc. Such oils as mineral and castor oil may be used. No specific hazard has been associated with their use.

HARDENERS: These are materials used to aid in setting of certain resins. Hexamethylenetetramine (Hexa) is most frequently used and is a well known sensitizing agent. Exposure to it must be kept to a minimum if cases of dermatitis are likewise to be kept to a minimum. This is necessary even if some of the workers can practically dust themselves with it and still not develop dermatitis. After it is added to the resin and reaction is completed, no further trouble will follow.

Control of Hazards

ALTHOUGH the hazards of systemic intoxication are generally not great, the chemicals involved in plastic manufacture are many. At the Bound Brook plant the total number of raw materials approaches 1,000 for all phases of plastic manufacture. It is the responsibility of the Medical and Safety Departments to know what materials are used, what hazards are involved and institute the proper control measures. It will be found that many compounds have been used for years in industry and much knowledge conconcerning their toxicity has been compiled. Under this group would appear lead, toluene, carbon tetrachloride, benzol, acetone, alcohols, phenols, various acids. Some of these materials may not be used in production but may have other uses such as cleansing agents, etc. Review of the process and quantities of materials used or involved will immediately give a rough, quick guide as to the degree of hazard, if any. Further studies and protective procedures can be instituted as indicated.

In actual practice, good general ventilation is all that is necessary for many operations. On hot molds, rolls, calenders and ovens, it is frequently necessary to use hood and local exhaust ventilation to remove vapors at their source. It will be necessary, in weighing certain modifying agents, to perform this operation under hoods. Where there is possible exposure to lead or solvents, appropriate medical and environmental examinations will be indicated.

In contrast to the general relatively slight hazard of systemic intoxication in plastic manufacture is the possibility of local injury—dermatitis. Some of the chemicals can be classed as primary skin irritants. However, trouble from primary skin irritation or true contact dermatitis is not common. The more frequent problem is sensitization dermatitis. Formaldehyde and "Hexa" are common offenders. In mild cases, an immunity (decrease in sensitivity) may be built up and the individual may continue to work with the materials.

The dermatitis seen in the manufacture of plastics commonly arises from exposure to dusts or vapors. Its control is brought about by using the various measures of decreasing exposure. Although most cases are on a sensitization basis, decreasing exposure and thus decreasing dosage will definitely lower the incidence of dermatitis. Good general ventilation and local ventilation on hot rolls, etc., as previously mentioned, will reduce vapor concentrations. If a dusty process is causing excessive exposure, again, ventilation will reduce it.

When materials are known to cause dermatitis, direct contact with the skin should be avoided as much as possible. Good housekeeping, with frequent cleaning of working areas and equipment, will reduce exposure as will personal cleanliness, with showers and change of clothes. Under some conditions, personal protective equipment, such as gloves and aprons, may be helpful. Protective creams may be used but are subject to limitations that are well known. However, if a certain amount of skin contact is necessary and the worker does not substitute the cream for cleanliness, benefit may be derived.

Conclusion

THE health hazards associated with the manufacture of plastics are not of an extreme nature. Many of the hazards are associated with materials that have been used by industry for years. New materials are appearing steadily and will bear close scrutining as to their toxic properties. The manufacture, molding and fabricating of plastics, is a combination of chemical and mechanical processes. The control of the hazards is brought about by consideration of the toxicity of the material, the amounts used, and then instituting adequate environmental, personal and mechanical protection. A common problem encountered is that of sensitization dermatitis. Actual cases can be kept to a minimum by instituting dermatitis control measures. Opportunity for systemic intoxication exists in the use of modifying agents added to the resins. In certain processes, because of frequent changes, they must be watched closely to prevent injury. New chemicals should be tested by a range finding test and followed closely by proper medical examinations until sufficient experience has been gained to evaluate their toxicology.

FIRE PROTECTION FOR INDUSTRY

A SECTION IN WHICH ARE PRESENTED THE VARIED SPECIALIZED PROBLEMS AND SOLUTIONS TO FIRE FIGHTING CONTROL AND PROTECTION IN INDUSTRY

Table of Common Fire Hazardous Chemicals—Part 3 40
Prevention of Exposure Fires 41
How to Take Care of Your Fire Hose 42
Meet the Chief 43
Safety Pointers for Welding Operations 45

Table of Common Fire Hazardous Chemicals

Part III

From a table Prepared by Committees of the National Fire Protection Association and American Chemical Society.

Tentatively adopted 1928, *adopted* 1929, *amended* 1931, 1935, 1938, 1939, 1941, 1942 and 1944.

NOTE. These columns are informative only; it is not considered necessary that the material be kept or stored only in the containers as listed, nor that each package be labeled. The requirements in the table on the storage of containers refer to chemicals in usual containers, and are not intended to apply to small bottles of chemicals such as are found in drug stores and chemical laboratories.

Name	Usual Shipping Container	Fire Hazard	Storage	Fire Fighting Phases
Cobaltous Nitrate	Wooden barrels.	Oxidizing material. Classes with sodium nitrate.	See sodium nitrate.	
Colophony	Barrels.	Combustible; gives off flammable vapors when heated.	Ventilate storage; avoid dust; keep away from fire or heat.	
Copper Nitrate	Wooden barrels and kegs.	Oxidizing material. Hazard classes with sodium nitrate.	Safeguard against mechanical injury; isolate. See sodium nitrate.	
Cyclopropane	Steel cylinders.	Highly flammable gas. Forms flammable and explosive mixtures with air or oxygen. Explosive range 2.40% to 10.4% (upward propagation). (11)	Isolate from oxygen cylinders and store in a cool, well ventilated storeroom.	Use water to cool cylinders not on fire. If gas is burning at valves or safety releases, usually the best course to follow is not to disturb or attempt to extinguish flame. To do so will cause the release of unburned gas and quickly create highly dangerous explosive atmospheres. If cylinder is mounted on an anaesthetic machine or truck, it may be possible to move it to a safe place. Carbon dioxide or carbon tetrachloride are best extinguishing agents.
Didymium Nitrate	Wooden kegs.	Oxidizing material. Classes with sodium nitrate.	Isolate. See sodium nitrate.	
Dioxan	Glass bottle, metal cans, and metal drums.	Moderately volatile flammable liquid. Flash point 54° F. Explosive range 1.97% to 22.25% (upward propagation). (11) Vapors are heavier than air (vapor density 3.03). Capable of forming peroxides under certain conditions, and there may be danger of explosion if redistilled, unless certain precautions are taken.	Isolate and safeguard against mechanical injury.	Water best extinguishing agent.
Ether Ethyl	Glass bottles or tin cans in boxes, steel drums.	A highly volatile liquid, giving off even at comparatively low temperatures vapors which form with air or oxygen flammable and explosive mixtures. Explosive range 1.85% to 36.5% (upward propagation). (10) The ignition temperature is comparatively low, being approximately 180° C. (356° F.) (8) Spontaneously explosive peroxides sometimes form on long standing or exposure in bottles to sunlight. The vapors are heavier than air (vapor density 2.6) and may travel a considerable distance to a source of ignition and flash back. More hazardous than gasoline.	Safeguard containers against mechanical injury. Isolate and keep in unheated compartment away from sunlight and any source of ignition. Only electrical equipment of the explosion-proof type, Group C classification, permitted in atmospheres containing ether vapor in flammable proportions.	Lighter than water. (Sp. gr. 0.7135). Soluble in about ten times its own volume of water. Water may be utilized only to cool metal containers. Best extinguishing agents are carbon dioxide and sand, also carbon tetrachloride in case of fires involving limited amounts of ether. Total-flooding carbon dioxide systems may be employed for protection in storage rooms.
Ethylene	Steel cylinders.	Highly flammable gas. Forms flammable and explosive mixtures with air or oxygen. Explosive range 2.75% to 28.6% (upward propagation). (11) Ignition temperature about 450° C (842° F.) (18) Slightly lighter than air (density 0.97). The gas is spontaneously explosive in sunlight with chlorine.	Isolate from oxygen cylinders and store in a cool, well ventilated storeroom.	Use water to cool cylinders not on fire. If gas is burning at valves or safety releases, usually the best course to follow is not to disturb or attempt to extinguish flame. To do so will cause the release of unburned gas and quickly create highly dangerous explosive atmospheres. If cylinder is mounted on an anaesthetic machine or truck, it may be possible to move it to a safe place. In a closed storeroom carbon dioxide or carbon tetrachloride are best extinguishing agents.
Ferric Nitrate	Wooden barrels.	Oxidizing material.	Isolate. Safeguard against mechanical injury.	
Formic Acid	Barrels and carboys.	Flammable; gives off flammable vapors which may form explosive mixtures with air.	Safeguard against mechanical injury.	

(To Be Continued)

Building at left withstood a severe exposure fire which destroyed the adjacent plant. Wired glass windows, brick wall and automatic sprinklers protected the unharmed building.
(Photo: Courtesy of Factory Insurance Association)

Prevention of EXPOSURE FIRES

Many plants suffer severe fire damage each year because of fire originating in adjacent properties. If your plant is located next to an unsprinklered, or otherwise fire-hazardous property, precautions should be taken to minimize chances of partial or total loss by fire in your own plant in the event of fire in adjoining plant.

THE potentialities of an exposure should be carefully analyzed and measures taken to provide maximum protection for the exposed property. Adequate clear space between buildings is one of the best exposure protections to be had, but often times even this is not enough protection. Experience has indicated that exposure from an unsprinklered multistory building can be serious even across a street of normal width.

Protection may be provided in one or more of the following ways, depending on the degree of the exposure:

1. Standard blank parapeted fire walls
2. Fire walls with double fire doors at openings
3. Wired-glass windows in metal sash
4. Outside sprinklers
5. Shutters over windows
6. Inside automatic sprinklers
7. Public and private hose streams

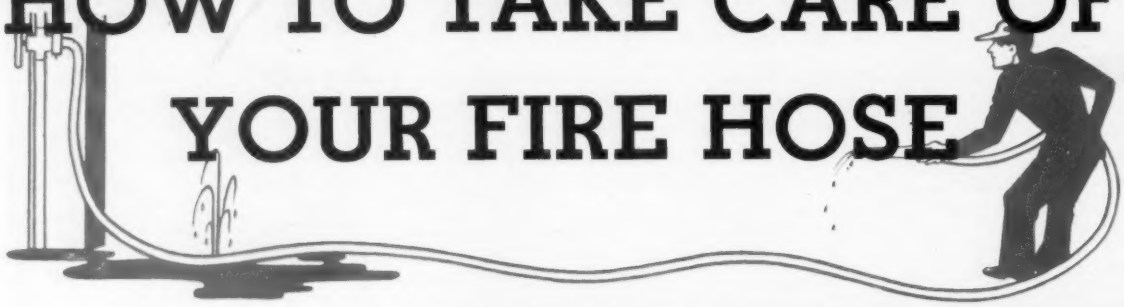
When a fire in adjoining property threatens a plant, any fire shutters on the exposed side should be closed at once. Windows and skylights on the exposed side should also be shut, and open sprinklers at windows or cornices should be turned on. Opening windows on the side away from the fire will help reduce the temperature in the building and vent smoke which may seep in.

If there is no special exposure protection, employees should patrol each floor on the exposed side of the building, moving all combustible materials back from the windows, so that they will not be ignited by heat radiated through the windows.

It is not necessary to knock out the links from sprinklers inside the windows, as they will operate automatically when they are needed. If they are opened before this, they will do no good and may cause unnecessary water damage.

When a plant is located to leeward of a large fire or conflagration, men should be stationed on the roof with extinguishers or hose lines ready to put out any fire which may start from flying brands. Hot embers have frequently started secondary fires a considerable distance from the original blaze.

HOW TO TAKE CARE OF YOUR FIRE HOSE



When fire strikes in an industrial plant, fire hose plays a major role in its extinguishment. There are a few precautions to be taken so that your fire hose will operate when it is most needed. Fire hose does not need to be pampered, but it must be given reasonable care and maintenance.

HIGH quality fire hose which meets the standards set up by various reputable testing laboratories such as the Associated Factory Mutual Fire Insurance Companies, or Underwriter's Laboratories is an excellent plant fire protection investment. A life of ten to fifteen years for cotton rubber-lined hose and fifteen to twenty years for linen hose is not unusual. It must be remembered, however, that to keep fire hose in good condition consideration must be given to various factors which might effect the usefulness of the hose during fire emergency.

Cotton Rubber-Lined Hose

This type hose should be kept in a cool, dry location, preferably a small, well-ventilated hose house with slatted shelves for good air circulation. The hose should not be stored in the main building where it might be impossible to reach in case of fire, nor should it be stored in a damp place where it might be subjected to mildew attack.

Corrosive chemicals, gasoline, oils or organic solvents will deteriorate the hose. Such substances should be kept away from the fire hose, another advantage of the separate storage shed. The storage shed should be unheated as continued exposure to even moderately high temperatures will cause the rubber lining to harden and crack, causing hose to fail.

When hose is kept in a hose house at a hydrant, it is good practice to have two or three lengths connected together and attached to the hydrant ready for instant use.

Testing Hose

Water should be run through the hose at least twice a year, and in addition, a yearly pressure test should be made at the maximum pressure expected during use.

Cleaning Hose

After the hose has been tested or after it has been used at a fire, all dirt should be brushed off and if very dirty, washed off. If the hose has come into contact with oil, the hose should be washed with soap—care being taken to remove all traces of the soap before hose is dried.

Drying Hose

The hose should be carefully drained and dried before replacing in hose house. This can be done by hanging the hose vertically in a stair tower or by laying it on a dry section of ground that slopes about two feet every fifty. When drying hose, be careful that the water is not draining on another hose as the sulphur in the rubber lining may form a weak acid with the water which might injure the hose fabric. When replacing the hose in the hose house, do so with bends and kinks at different points.

Linen Hose

This type of fire hose is chiefly used for short lines inside buildings and is particularly adaptable to this use as it can be kept in heated areas without deteriorating like the rubber-lined hose. It must be kept in a dry location however as it is even more susceptible to mildew attack than cotton rubber-lined hose.

A point to particularly watch is where the hose is connected to the coupling. Water leaking past the valve seat rots the linen. This point can be tested by giving the hose a hard pull just below the valve. If a weak section is found, the part should be cut out and the coupling replaced on the remaining good portion.

Because the hose will readily mildew, it is not good practice to turn water into linen hose except when used at a fire or when tested. A careful examination of the hose should be made yearly and pressure tests should be given any section which appears weak. Visual examinations are often time misleading as many linen hoses which appear in first class condition are in reality too weak to hold even normal water pressure. After a hose is ten years old it should be given a hydrostatic pressure test, and this test should be repeated every second year thereafter.

More care should be given the drying of linen hose than the cotton rubber-lined hose as even a slight amount of moisture will invite mildew attack and rapid deterioration. If the hose can be easily folded or rolled it is an indication that it has been dried well. Damp hoses are very difficult to fold or roll.

Conclusion

Mildew and war are the greatest enemies of linen fire hose and of the jacket on cotton rubber-lined fire hose. Corrosive liquids, termites, and gnawing animals are also responsible for bursting hoses. Leaks in cotton rubber-lined hose can be caused by the rubber lining drying out from lack of use or storage in moderately high temperatures. Keeping the hose for long periods with kinks at the same point also causes the rubber to crack. Gasoline, oils, and solvents may soften the rubber and allow it to seperate from the jacket.

MEET THE *Chief*...

OCCUPATIONAL HAZARDS will bring to its readers as a regular feature each month the true, inside story of an industrial fire, stressing HOW AND WHY IT HAPPENED. Each story will be told by the man who heads the fire department of a large city. These authentic accounts by men who devote their lives to fighting fires and to the study of fire hazards are presented to the readers of OCCUPATIONAL HAZARDS with the belief that they will be of value to fire protection men in industrial plants throught the country.

OUTSIDE STORAGE OF FLAMMABLE MATERIALS

By
CHIEF FRANK C. VERNOTZY
Akron Fire Department

Our guest writer of the month is Chief Frank C. Vernotzy who heads the Department of Fire, Akron, Ohio. The Chief joined the department in 1909 and was placed in charge of the department in 1942. Akron has been called the "Rubber Center of the World" so this article about safe storage of rubber and other flammable products should really prove of interest to our readers.

IT is most important that certain precautions be observed when flammable materials are stored in outside yards if serious fire hazards and major fire losses are to be avoided. This is especially true where such materials are to be used in some manufacturing or salvage operation and the storage yards are adjacent to permanent buildings and installations.

It will be found that this discussion deals primarily with rubber storage, consisting in the main of old tires and rubber scrap waiting reclamation. It should be realized, however, that the precautions listed here for this type of storage apply in general to all types of flammable materials which are stored in the open. These stock yards have much in common in the manner of fire hazards and the suggestions listed here for the elimination of fire hazards and the minimizing of fire loss to rubber piles apply in general to all other places where flammable materials are stored. Local ordinances govern specific requirements and details can always be obtained from the local fire department.

Material should be stacked in all such areas in such a manner that in event of fire, the resulting loss will be confined to a minimum. In order to accomplish this, stock must be arranged in accordance with certain safety provisions that past experience has dictated. Rubber scrap should be stacked in piles, each pile not exceeding 15-20 feet in height nor occupying more than 2500 square feet (50 feet by 50 feet) of ground space. Aisles at least 20 feet in width should separate the piles from one another. An aisle width of 50 feet is preferable. Local ordinances, however, and the size of the overall storage area often have much to do in determining the exact aisle width.

Of much importance is the distance between the stock piles and buildings and permanent installations. In no event should this distance be less than 100 feet.

The aisles between the individual stock piles and the clear area separating the piles from buildings are useless if they are permitted to become cluttered with miscellaneous scrap and junk. In addition to blocking passage of fire fighting apparatus, such scrap can easily convey fire from one stack to another, thus defeating the original purpose of the aisle. If good housekeeping rules are observed around the storage area, these fire hazardous conditions need not arise. All scraps of wood, paper and other combustible materials should be removed from the storage area and kept clear. Rubbish piles should not be permitted to accumulate in odd corners of the area.

Grass is hazardous to fire safety if permitted to grow unchecked about the piles of flammable stock. This is especially true if this condition has existed for some time and dry, dead grass is abundant in the area. All grass should be cut, the area raked and the grass roots destroyed by salt.

"No Smoking" signs conspicuously posted about the storage area is an important step toward prevention of fire, particularly if the rule is rigidly enforced.

Fire extinguishers and barrels of water (anti-freeze) with attached fire pails should be placed at convenient places around or near each stack. It is advisable for persons responsible for the safety of these areas to call upon their local fire department for help in combatting fire hazardous conditions. Besides being able to inform management of the special local ordinances that apply to the operation, the fire department can make many valuable suggestions based on past experience that may well prevent a fire and

(Continued to Page 46)

Have You Money to Burn?

NO SENSIBLE PERSON would burn *money.* Yet every year in the United States over $600,000,000 goes up in smoke.

You are already paying part of this bill in higher insurance rates. Yet you stand to lose much more if fire strikes *you.*

Loss of production time, loss of property that cannot be soon replaced, loss of standing in the business community, loss of life itself—these are losses that can never be repaid.

To guard against such losses, equip your home, car, boat, and place of business with QUICK AID Fire Extinguishers. There is a QUICK AID FIRE GUARD for every fire hazard. Consult your dealer or write for free copy of "Your Fire Protection Insurance Policy."

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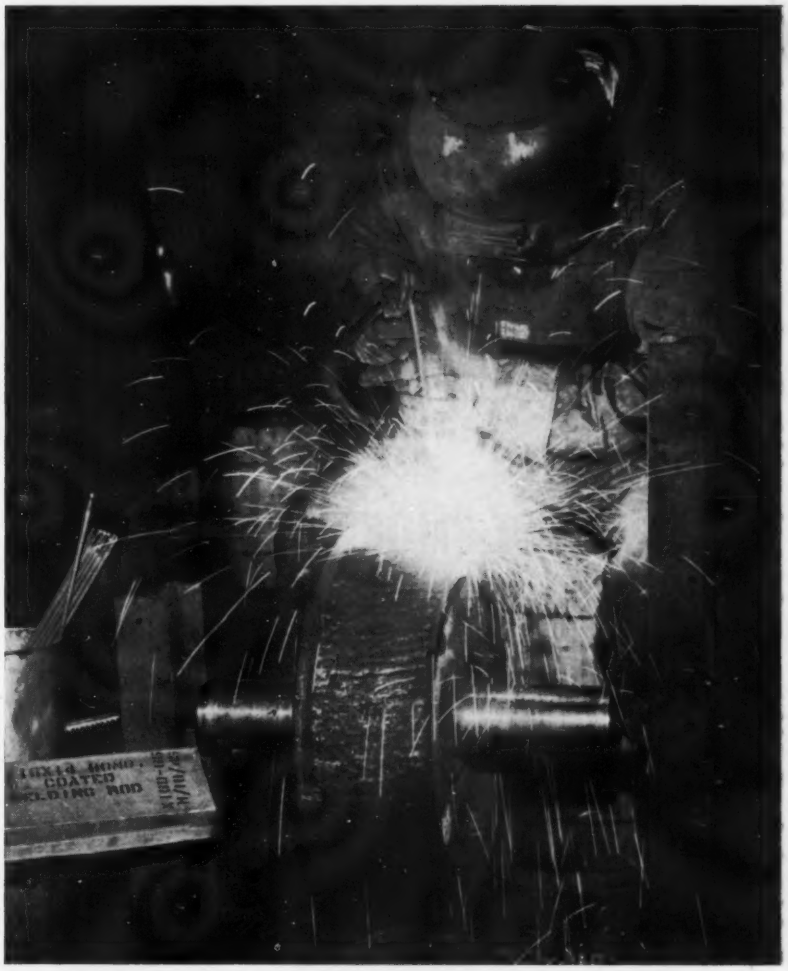
BY LEO VIGNEAULT
Safety Engineer



SAFETY POINTERS FOR WELDING OPERATIONS

A FEW WEEKS AGO our work schedule in the Main Building at Solar, San Diego, was interrupted by the ringing of bells followed shortly by sounds of arriving fire trucks and fire-fighting personnel. All this was caused by a fire in one of our welding booths. Fortunately, with the aid of the plant's efficient fire sprinkler system and trained plant personnel, the fire was extinguished prior to the arrival of City equipment. Fire Department personnel, under the able direction of Battalion Chief Lusk, quickly cleared work areas of water accumulation and restored order in that section of the building.

An investigation at the scene following the fire disclosed the following information: A stray spark from a welder's rod had ignited a leaky pressurized hydrogen hose at a point near the manifold coupling, and was left to burn unhampered during the absence of the welder. Soon after, the hose burned completely around the coupling and dropped off—allowing the free escape of burning hydrogen gas under seven pounds of pressure. A carton of welding rods and rags on the welder's bench caught fire, and almost at once the paint on the walls of the booth became involved, raising the temperature in that area above 160° F., at which degree of heat the overhead sprinkler system automatically went into action. Closure of the gas valve by one of the employees while another fought the blaze with a nearby fire extinguisher quickly brought the fire under control, and the resulting damage was negligible.

Here are a few safety recommendations for all welders, particularly directed to the attention of those employees welding in booths or other confined areas:

1. Keep all combustible materials away from welding booth. (These include paper, rags—particularly oil-soaked rags — inflammable liquids, etc.) Where welding or cutting has to be done in the vicinity of combustible material, special precautions should be taken to make certain that sparks or hot slag do not reach the combustible material.
2. Oxygen and compressed gas cylinders should be placed far enough away from the welding position so that they will not be unduly heated by radiation

(Continued to Page 46)

of heated metal, by sparks or slag, or by mis-direction of the torch flame.

3. Fasten compressed gas cylinders in an upright position to work bench, wall, or post, so that they cannot be knocked or pulled over.

4. Be sure to keep a clear space between cylinders and the work. This is important in order that cylinders and regulators may always be reached quickly in an emergency.

5. In places where both gas welding and electric welding apparatus are used, care should be taken to avoid the handling of this equipment in any manner which might permit the compressed gas cylinders to come in contact with such electric welding apparatus or electrical circuits.

6. Never use acetylene at pressures above 15 pounds per square inch.

7. When stopping work for an hour or longer, release the pressure in the regulator.

8. Keep oxygen cylinders and fittings away from oil or grease. Do not handle oxygen cylinders or apparatus with oily hands or gloves. Oil and grease may ignite violently in the presence of oxygen under pressure.

9. Open cylinder valves slowly. Never hammer the valve wheel in attempting to open or close the valve.

10. Inspect hoses and equipment periodically, and report at once to your foreman when defects are discovered. Never employ flame to detect leaks on hoses or piping systems. This should be done with soapy water.

11. Keep your workbench and work area clear of unused materials. Keep them orderly.

12. Know where your nearest fire extinguisher is located. Be sure you know how to operate it.

HERE'S THE ANSWER

TO

YOUR PLANT SMOKING PROBLEM

THE SIPCO SAFE SMOKER

Whether you allow smoking in your plant or have restricted areas, the SIPCO SAFE SMOKER is a practical solution to your smoking problem.

The fire hazard is completely eliminated because the SIPCO SAFE SMOKER instantly extinguishes cigars, cigarets and matches. There is no smoldering because the canister is partly filled with water.

SANITARY—the canister is easily detached for cleaning.

Especially designed for hard industrial abuse, the SIPCO SAFE SMOKER is both practical and attractive. Modestly priced, the SIPCO SAFE SMOKER is now used by many of the nation's largest industries.

Send For Literature

STANDARD INDUSTRIAL PRODUCTS CO.
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MEET THE CHIEF
From Page 43

major loss of the property concerned.

When management ignores this advice, or refuses to cooperate with their local fire department, the results can prove disasterous as was recently borne out in a fire involving a large rubber storage concern in which the loss was determined at $350,000. The fire raged through the entire property because the safety provisions which have been listed in this article were not observed.

Fires of this nature, (as are the majority of most fires) are unnecessary. Protection against fires in these storage areas is easily accomplished providing management works intelligently with their local fire department—observe the rules of the game and come to the realization that the fire department has a good deal of practical experience to draw from and that it is all free for the asking!

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NYLON USED FOR FIRE FIGHTING

By RAYMOND E. MISKELLY
Research Department
Plymouth Cordage Company
North Plymouth, Mass.

Nylon—the glamor product—may become an important aid to fire fighters in battling future holocausts.

BECAUSE rope is an indispensable tool in the fire service and because nylon possesses definite flame-proof and heat-resistant qualities, the synthetic product may find an important place among the varied ropes which have long been standard equipment of fire-fighting groups.

Where a natural fiber rope begins to char at 300° Fahrenheit, nylon will not begin to melt until a flame of about 482° F. is applied. When the flame is removed the melt will harden with little tendency for further burning, whereas the fiber rope will support combustion and will burn after the igniting source is removed, although the progress of the burning is slow because of the rope density. Moreover, a manila fiber rope will continue to glow for some time after the flame has been extinguished, but the nylon will not support the spread of flame after the igniting source is gone.

Rope manufacturers have worked with nylon since shortly after the introduction of this wholly man-made fiber by DuPont in 1938 and have tested its physical properties under all sorts of circumstances.

By heating it in air at moderate temperature, they discovered that when heated to 260° F. for 24 hours, nylon showed a permanent strength loss of 15% whereas natural fiber rope heated under the same conditions lost about 30%. Longer heating caused greater loss in both cases with nylon losing at a faster rate.

Other qualities of nylon which may make it adaptable for fire-fighting purposes are its greater tensile strength, elasticity, wear resistance, rot resistance and resistance to atmospheric exposure.

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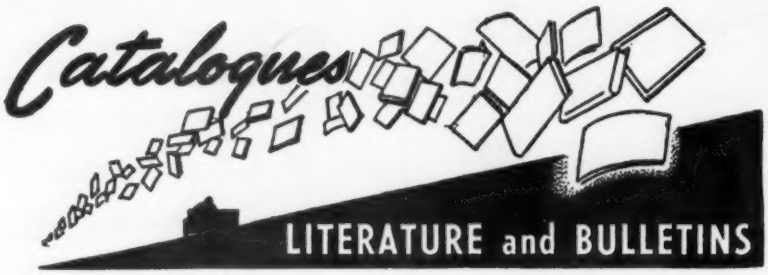

The publications featured on these pages were written by experts. They may be obtained without charge. To obtain these use the postcard bound into this issue.

FL-187 . . . A new safety award and emblem catalog is now available from the Williams Jewelry & Mfg. Co. It is an eight page circular showing stock safety emblems, trophies, plaques, memorial tablets and safety awards of stock and special nature. This catalog shows, through its presentation of the various items listed, many new and old safety programs that have proven themselves in industries both large and small.

FL-188 . . . Controlled Humidification is the subject of a new bulletin offered by the Armstrong Machine Works. This valuable booklet explains the need for humidification and how to achieve it. Included is much valuable reference data on humidification requirements for processing and/or storing a wide variety of materials.

FL-189 . . . Pierce Renewable Fuses, Inc., have prepared a folder on the subject of fuses, designed to give everyone a better understanding of the subject. "What is Lag . . . and How it Helps," "Unbalanced Lag Permits Terrific Waste," "Unnecessary Blows . . . A Huge Production Loss," and "Scientific Blow Points" are headings of some of the paragraphs included in this pamphlet.

FL-190 . . . The Union Wire Rope Corporation have now available two more valuable booklets on use and care of wire rope. "Wire Rope Lubrication" and "Wire Rope for Well Drilling" are the titles and both of them describe their respective subjects thoroughly.

FL-191 . . . A booklet available through the Hass Corporation describes a five-inch magnifying lens which is mounted in a one piece plastic head and used for close work, at the same time providing eye protection against flying chips, etc. The product, "Magnalite", is equipped with built-in fluorescent tubes to provide soft light without heat or glare directly on the work where it is needed.

FL-192 . . . A booklet prepared by Emergency Aids Company describes the COLLAPSI-COT, said by the manufacturer to be "the world's most versatile stretcher." Designed to function where other stretchers cannot, the new unit provides a greater range of applications and manueverability. Multi-purpose, it serves as a flat stretcher, transfer chair, convalescent lounge and many other uses. Its ingenious telescopic construction permits instant adjustment and positioning to meet every requirement. The booklet contains several photographs illustrating the stretcher in use.

FL-193 . . . A twelve page booklet in color has been prepared by the American Abrasive Metals Company. This booklet describes their several types of non-slip floor materials designed for use on stairs and flooring surfaces. A large number of photographs illustrates the many uses to which this product can be adapted. Some of the products described include plastic anti-slip nosings and strips, abrasive anti-slip stair treads and floor plates, lightweight anti-slip resin-abrasive tiles, anti-slip floor paint and others.

Is DDT Hazardous When Applied To Wallpaper?

A manufacturer of wallpaper was faced with a strike when he installed a process of applying DDT to wallpaper. After operating for a few days, the men refused to continue making this type of wallpaper, claiming that DDT was toxic and a serious health problem was involved. The U. S. Public Health Service was called in and that agency in turn referred the industry to the Division of Industrial Hygiene, Illinois Department of Public Health.

The process involved the incorporation of DDT with the colors used in the wallpaper by the use of an emulsion made up of about 35 percent solution of DDT in xylol and ENJAY No. 1 solvent. The wallpaper was printed on the conventional wallpaper press which is a large drum. Keyed around the drum are various patterns, each pattern applying a particular figure in one single color to make up the wallpaper pattern itself. It is a continuous process, and after the paper is printed it passes in a festoon arrangement for drying and is subject to a hot blast of air. There was no exhaust in the drying section of the room so that any solvent that might evaporate or any dusts that might evolve generated into the general room air.

After a careful study of recent literature on this subject, the division decided DDT was not a health hazard in this case, but that the solvent exposure was. As it happened, the supplier of emulsion had been working of several months on making a water emulsion available, and therefore eliminating the use of an organic solvent. Fortunately, this substitution was possible at this time. After recommendations were put into effect concerning sanitation, housekeeping, washing facilities, and prohibition of eating in the rooms where this material was printed, cut, and packed, the workers went back to their jobs. The division, however, is continuing to observe the problem closely.—*Industrial Hygiene Newsletter*

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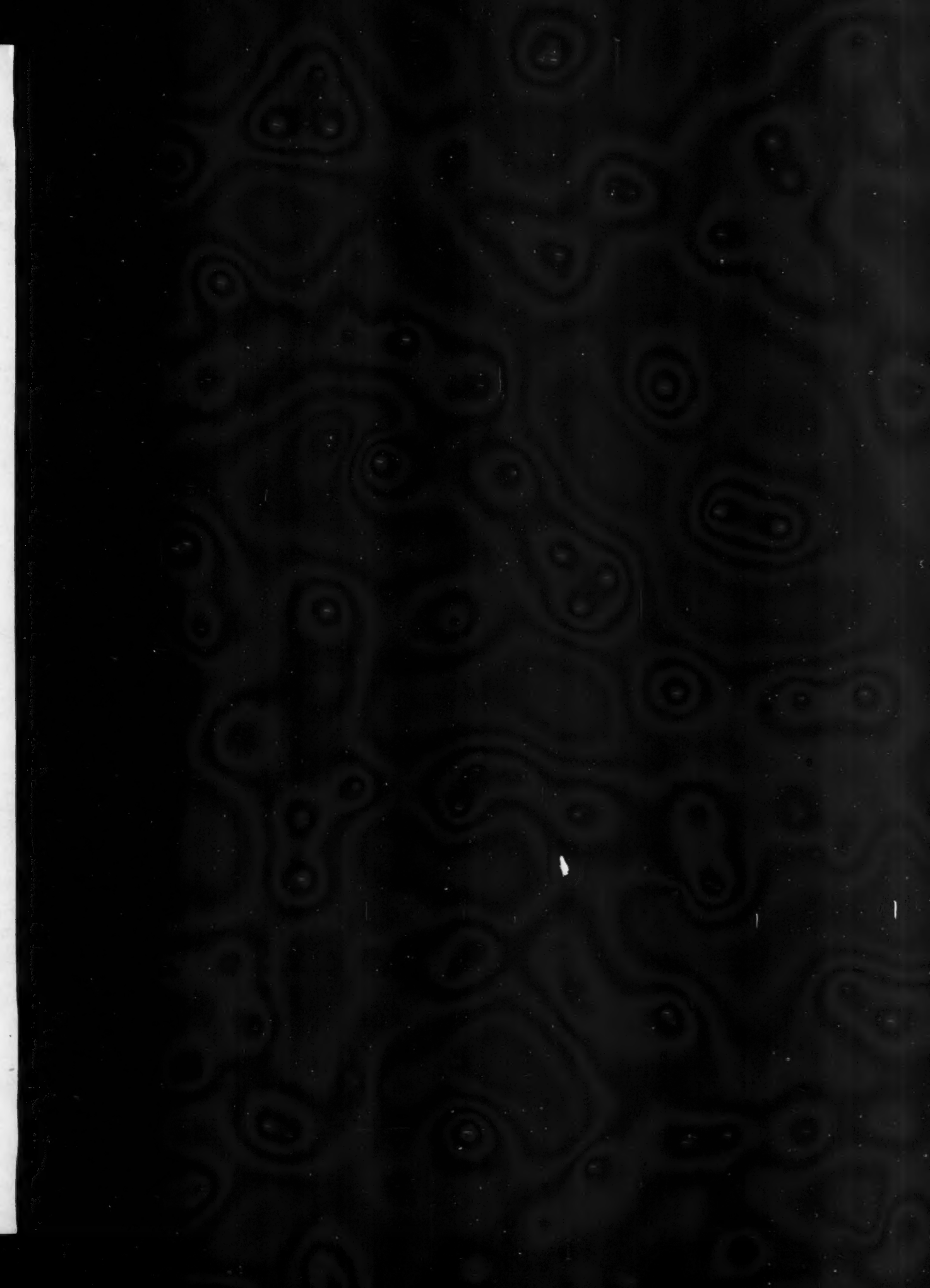
"THERE CAN BE NO COMPROMISE WITH QUALITY WHEN A LIFE IS AT STAKE"

Here it is! The issue that marks a milestone in the life of OCCUPATIONAL HAZARDS Magazine. The start of our second year in the larger sized book . . .

This addition of space has made possible a more complete magazine for the plant men responsible for safety, health or fire protection.

We have, for example, enlarged our "Right off the Docket" section, one of the most popular features in the book. Our Fire Protection section is getting larger by the issue and now includes five feature stories per month. Among the features in this section are the popular "Meet the Chief" series, in which leading fire chiefs from all over the country express their views on industrial fire protection. Our sensational series of photos entitled "And Sudden Injury" are being posted on hundreds of plant bulletin boards. "Accidents in the News" bring true accounts of industrial accidents to the readers.

These are only a few of the features that cause our readers to say "OCCUPATIONAL HAZARDS is the best safety magazine I get!"